Industrial FINISHING

Reg. U. S. Pat. Office

Devoted to Product Finishing in the Factory

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Letters from Readers

OF INDUSTRIAL FINISHING

Editor's Note—These letters have been promptly answered and all of the inquiries have been referred to advertisers in the magazine. They are published here to indicate or suggest certain interesting trends of thought and activity in the industry, and to encourage further inquiries, comments and suggestions. The names and addresses of firms or individuals whose letters are published here may be had by writing to this office, or letters sent to them in care of this office will be forwarded at once.

Graining Paper

On some inexpensive production furniture, a process has been worked out as a substitute for the so-called graining of the wood, the effect being obtained by the use of photographic prints on a certain type of paper cemented to the surface and then lacquered over. Have you any idea where this type of photographic overlay can be obtained?—T. G. Corp.

Graining Equipment

Who makes graining equipment for wood graining on flat steel surfaces? We had circulars three or four years ago from some concern in northwestern Ohio, sending samples of wood grain on metal, but we cannot seem to locate the company. There must be several concerns making this type of equipment. Perhaps you can also recommend some instruction manual on this subject.—V. N. R. Co.

Names and addresses of leading manufacturers of graining equipment have been submitted in reply to this inquiry.—Ed.

Stencil Graining

In your March issue, an inquiry was published relative to where stencils to reproduce the grain of wood could be procured. Your further kind cooperation would be appreciated in also informing us the name of the manufacturer.—X. L. Co. (Industrial and Commercial Wood Products).

In your March issue, under "Letters From Readers", we note an inquiry addressed to you, requesting information regarding spraying furniture through stencils. The inquiry so reads that we are confident your inquirer has our Veneer-ite process definitely in mind. Because of our anxiety to get in touch with this inquirer, we will greatly appreciate it if you will forward us his address, and at the same time advise us what disposition you made of this inquiry when it was received. — Finishing Systems, Inc., Louisville, Ky.

Fire Extinguisher

I am very much interested in the "Firex" Automatic Fire Extinguisher, mentioned in your magazine of February, 1937. Would you kindly request the manufacturer to forward particulars, prices, etc.; also as to whether they have an agent in Australia.—I. Y., Sydney, AUSTRALIA.

To Coat Small Parts

We receive regular issues of INDUSTRIAL FINISHING and find the articles and information contained therein very interesting.

One of our clients has asked for information on equipment suitable for coating small articles such as buttons, sardine can keys, etc., and

NEW TYPE WHITE SYNTHETIC ENAMELS

These enamels produce intense white coatings on metal or wood. Their unusual characteristics are retention of whiteness, resistance to chipping, cracking and peeling.

Two important features are — one coat application and non-poisonous nature — particularly desirable to makers of refrigerators, hospital equipment and juvenile furniture. They are made for either air dry, low or high bake and can be sprayed, dipped or brushed.

Write for factory sample specifying method of application and baking temperature.

SPRUANCE QUALITY

Specialists in the manufacture of wood and metal Finishing Products, since 1907.

The Gilbert Spruance Co.
RICHMOND & TIOGA STS.
PHILADELPHIA, PA.

as machines for this purpose are not manufactured in this country, we thought that you could help us by sending any available literature.

We might mention that we have written to one concern on this matter, as we notice from their advertisement in INDUSTRIAL FINISHING that they supply machines for this class of work—A. O. & I. G. P., Melbourne, AUSTRALIA.

"Dummy Light Bulbs" Article

Going over the April issue of INDUSTRIAL FINISHING, we were very much interested in the article beginning on page 11 and entitled "Finishing 33,000 Dummy Light Bulbs." We have several finishing jobs which are similar to this and have had some little difficulty with them. On page 12, you state that you would give us the name of the gray lacquer which is used. We would appreciate having it . . . . — S. & S. Products.

We read with considerable interest the article in your April 1937 issue entitled "Finishing 33,000 Dummy Light Bulbs." We should like to obtain the name of the manufacturer of the lacquer which was adopted by the Pulp Products people in making the bulbs.—A. Airplane & Supply Co.

It is The J. E. Harris Co., Wooster, Ohio.—Ed.

To Bleach Magnolia

In a recent issue of your magazine you refer to various sources of supply on wood bleaches. We have a problem of bleaching magnolia which is already a white wood, but has dark streaks, and it seems that the ordinary bleach does not work satisfactorily on this. Can you recommend a source of supply for a material that will solve our problem?—H. I. Co. (Fiber and Reed Furniture).

Mirror-Back Paint

I am interested in the purchase of mirror-back paint. I understand that this product is made in paste form, in a dark gray color, and that same is a special paint for painting the backs of mirrors, after quick silver has been applied. This paint must

Metalized

SYNTHETIC and LACQUER ENAMELS h.m.p. types

SIMULATED PEARL—EXCLUSIVE FINISH FOR METAL—WOOD—COMPOSITIONS

Large variety of shades—including simulation of bronze, silver and gold.

One coat covers solidly.... Leafing and dispersion action of metallic ingredients makes for beauty of finish and insures covering, hiding and mileage properties.... Dries fast.... Perfect adhesion and flexibility.

Excellent one-coat finish for electrical appliances, cabinets, furniture, caskets, toys, lamps, automobiles and other products.

UNITED LACQUER MFG. CORP.

Write for sample. Specify lacquer or synthetic type and color.

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For coating small metal, wood, fibre and composition parts .....

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No loss of material... All operations done within the machine... Material never leaves the unit... No washing when changing colors.

Unfortunately, in the past, centrifugal coating equipment was not clearly understood and mistakes were made in both method and application. Present methods and equipment are in no way related to these earlier efforts. Our methods are new and should be judged according to its own merits and proof of performance.

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Mail some items of your make today. We will finish them and return for your minute inspection. You can't lose on such a demonstration.

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Absolute LACQUER SAND SEALER

Why not try . . .

5 Gallons

at drum price?

ECONOMICALLY PRICED!

IF—it doesn't

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Woodfinishing Products Co.

34 Industrial St. Bronx, N. Y. City
Winston-Salem North Carolina

be such that it will not later stain or mar the mirror in any way.

We would like to receive ¼-gallon samples of this product, together with instructions for application and also best price for material delivered F.O.B. point of shipment. Will you please refer this inquiry to such manufacturers as make a specialty of this item and oblige?—R. C. C., Puerto Rico.

Pressure-Feed Spray; Lift Skid

Kindly let us have descriptive literature covering the Pressure-Feed Spray Cup referred to on page 45 of the March, 1937, issue of INDUSTRIAL FINISHING. We would also like information regarding the Lift Skid for removing or lifting drums or barrels of liquid, as pictured on page 48 of the same publication.—S. B. Mfg. Co. ("Fifty Years of Progress").

In your March issue of INDUSTRIAL FINISHING, I noticed on page 48, a Lift Skid used for tilting 55-gallon drums. Will you be kind enough to send information as to where I will be able to obtain one of these Skids? —A. R. Mfg. Co. (Filing Systems and Equipment).

The lift skid is a product of C. E. Farrington Co., Phoenixville, Pa.—Ed.

Heat Discolors Copper Finish

We are submitting the following problem and will appreciate any information you can give us, or references that you may be in position to give which would help solve our particular problem.

We are manufacturing an article, which at present is copper plated over a steel base. Parts of this surface are subjected to a reflected heat temperature from a gas burner of approximately 750°F. This copper plating has resulted in discolorations when put under test without a protecting lacquer coating, and also discolors with a clear lacquer coating which we have used.

Is it possible to secure a coating which would not discolor and which would protect the copper plating to hold its original color? If this is not practical, are there any recent finishes which would resemble closely a copper plating which would not

discolor when subjected to heat of the intensity referred to above.—H. D. G. Co. (Gas Appliances).

Editor's Note: We will appreciate readers' suggestions or recommendations on this subject.

Control Systems

I have been a reader of INDUSTRIAL FINISHING magazine for the past few months. However I am interested in the work more from a control standpoint and am wondering if any material regarding workroom systems is published—such systems and forms as are in use in spray and finishing rooms at the present time.—H. F. M.

"In-Wood" Finish

I am endeavoring to get some information regarding a finish that is a sort of combined filler and stain, which is put out in clear or in colors, and which is heat-resisting and acid-resisting, suitable for use on table tops and drain boards.

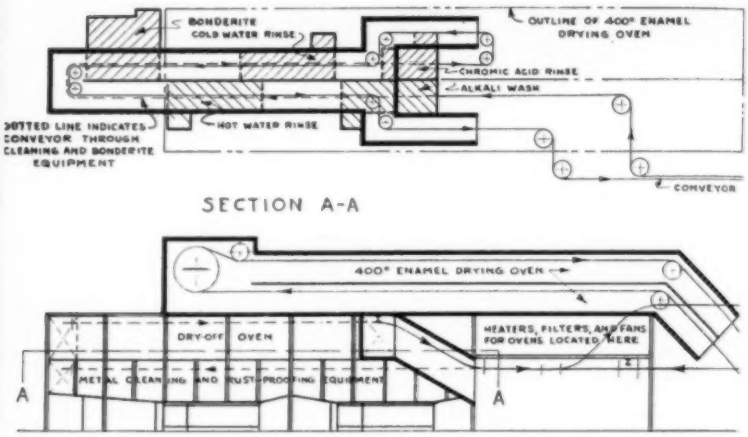
We have used it, and the trade name was: "In-Wood", though this was several years ago—about three, I believe. We do not know the name of the company who manufactured it, or the name of the wholesaler who sold it, and no one in this town (Petaluma, Calif.) seems to know about it. It is not a varnish or paint, and was applied with a cloth, and was highly inflammable.—O. V. S. (care Junior High School).

Who Makes "Oxoseal"?

I wonder if you would let me know where I could get full information on "Oxoseal," which is a metal rust preventative of some kind?—S. R. H.

We do not find the name "Oxoseal" listed as a metal rust preventative paint. The nearest thing we find is "Oxseal" which is a black roof paint made and sold by the Oxford Paint Co., New York, N. Y. (we can find no street address). Next there is "Oxtop" a rust sealer and preventative made by O'Brien Varnish Co.,

(Continued on page 71)



Cleaning and Finishing

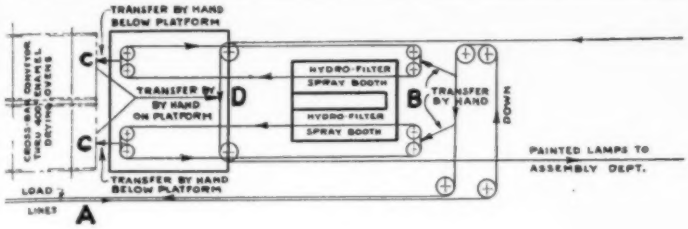
ON A MODERN AIR-CONDITIONED

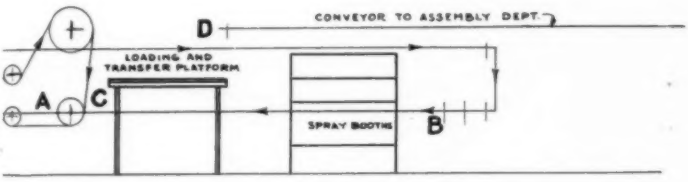
Fig. 1 — Plan and side elevation of the equipment which is all enclosed in an air-conditioned "daylight" room. There are four manual transfer points —at A, B, C and D. At point A, lamp shells are placed on a conveyor which carries them through the entire preparatory process of cleaning, rust-proofing and drying. The lamp shells are then transferred at "B" to conveyor lines passing through two hydro-filter spray booths. After passing through the spray booth, they are transferred at "C" to cross-bar conveyors which carry them through the final enamel drying oven located above the dry-off oven. The lamps are then transferred again on the platform at "D" to a conveyor which carries them to the assembly room. Drawing courtesy of The Mahon Company, Detroit, Mich.

by W. H. Rohr

A REMARKABLE installation in which the metal shells for the automobile headlamps are cleaned, rinsed, bonderized, dried, tack-ragged, spray finished, baked and inspected—all in one glass enclosed air-conditioned room—is in operation in the plant of the Corcoran-Brown Lamp Co., Cincinnati, Ohio. The company makes complete headlamps for several large automobile manufacturers.

Lamp shells for black car bodies are finished completely in





Auto Head Lamp Shells

CONVEYORIZED PRODUCTION LINE

black, which includes a coat of black primer followed by a coat of black enamel, each coat being baked at 450°F. Lamp shells for car bodies to be finished in colors are given a coat of red-oxide primer which is baked at a temperature of 350°F. for 33 minutes. Each lamp shell is coated inside and outside.

In the installation now operating in the Corcoran-Brown plant, equipment of several different kinds, each representing the last word in point of development, has been combined and installed by one engineering firm so that it functions efficiently and economically in a minimum of floor space. It really operates in a glass inclosed space that might be properly described as being two decks in height. In fact the compactness of the entire unit is such that photographs to show the work of any of the equipment are very difficult to make. The author, therefore, is calling into service the engineering firm's drawings and two early photographs taken after the equipment had been placed, but before it was enclosed by the present framed glass partitions. In addition to these illustrations, we also present two which were shot during

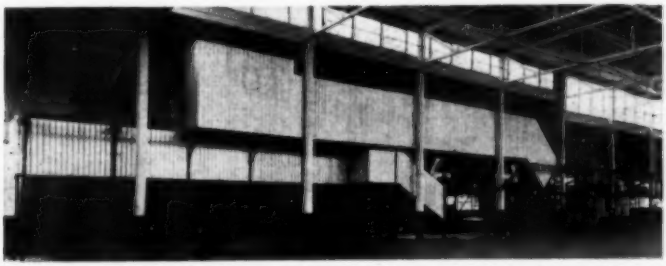


Fig. 2—One view of the equipment just after it was installed — before the glass enclosure was put up around it. Inside the lower enclosure, shown in dark color in the foreground, is the automatic metal-cleaning and bonderizing equipment. Directly above this is the dry-off oven. The enclosure at the top is the bake-finishing oven. (See this side elevation on preceding page.) The water-wash spray booth is in the background to the right. Photograph, courtesy of The Mahon Company, Detroit, Mich.

present production operations, showing all conveyors loaded with work.

Pressed steel lamp shells come to this metal-cleaning and bake-finishing department bright and shiny from what are called the "polishing" machines wherein abrasive belts are used to dry-clean and smooth the bare metal. The lamp shells enter by overhead conveyor and are moved through all operations by conveyors, but at a few stations within the enclosure, workmen transfer the metal shells from one conveyor to another. This manual transfer of products occurs first when the lamps enter the cleaning-finishing department. They are transferred to a conveyor that carries them through the entire preparatory process of automatic cleaning, bonderizing and drying, all of which is accomplished within the lower enclosure shown in Fig. 2.

Fig. 3—Another view of the installation before the glass enclosure was put up. Here the water-wash spray booth is in foreground. Photo, courtesy the Mahon Co.

Fig. 4—A close-up taken through the glass partition at a point where incoming lamp shells are first placed on the conveyor that carries them into the metal-cleaning and bonderizing operations, as at "C" in Fig. 1.

The cleaning and bonderizing process includes alkali wash, hot and cold water rinses, chromite acid rinse, bonderite treatment and drying. Reference to Fig. 1 (at the left side) will show the relative location of equipment employed for this work.

Emerging from the cleaning and bonderite process, the lamp shells are a mouse gray in color and have a slight trace of very fine powdery substance on the surface. Before the primer coat is sprayed on these bonderized surfaces, the lamps are carefully but quickly wiped with a tack rag by a workman as he transfers them from one conveyor to another, at a point near the water wash spray booth, see Fig. 5, at extreme right.

The water wash spray booths (really two booths positioned back to back) appear in Figs. 1, 3 and 5. In operation, a wall of running water at the back of the booth serves to eliminate all danger of fire hazard, prevents the collection of overspray on the backs or baffle plates of booths and on fan blades, and carries away the spray residue continuously. Two spray operators work at each booth, spraying the shells inside and outside as they are moved slowly through the booth by conveyor. This conveyor carries the coated shells into and through twin ovens (located side by side) which occupy the upper closed compartment, as shown in Figs. 1, 2 and 3. Passage through each of the ovens takes about 30 minutes, during which time the shells are subjected to a baking heat at 350°F. for oxide primer, and 450°F. for the black finish.

From the oven the conveyor carries the bake-finished shells

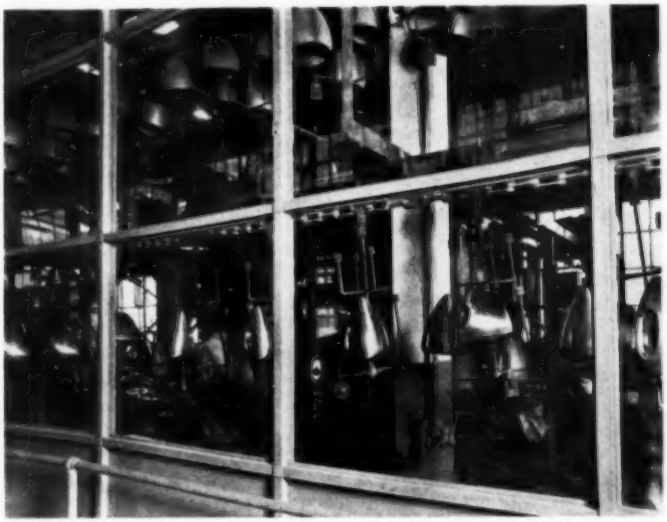


Fig. 5—Another close-up, looking through the glass partitions at a point close to the water-wash spray booth; see "B" in Fig. 1. Notice rubber-tipped holders.

slowly past inspectors standing on a railed transfer platform located on an upper level, as indicated at C and D in Fig. 1. Here every lamp shell is closely inspected before being transferred to the conveyor that carries finished lamp shells to the assembly department.

This entire cleaning and finishing department is enclosed in glass partitions, and the air within is carefully conditioned as to temperature, humidity, cleanliness, circulation and pressure. Apparatus for the conditioning of the work-room air is located outside the enclosure, on an overhead platform close to the water wash booths. The conditioned air is introduced into the room through suitable distributing ducts.

With this compact and enclosed installation, every reasonable safety feature and precaution for protection of the plant, the products and the workmen is adequately provided. The work is performed efficiently and economically at a predetermined steady rate of production by few workmen with the aid of perfected equipment (mostly automatic) which requires little attention and no great amount of power. It is a production set-up wherein the manufacturing costs can be figured with close accuracy.

Burnproof lacquers or fire-resistant clear finishes are in demand by several concerns.

A high-quality expensive finishing material may fail because of improper use or application.

THE "WHYS" OF USING THE MANUFACTURER'S *Recommended Thinners*

by Greggs Phillips

"The suggested topics for articles given in your letter . . . . have stimulated my imagination to the enclosed treatise on 'The Whys of Using the Manufacturer's Recommended Thinners'.

"The article is necessarily quite comprehensive. However, I believe it will answer many a reader's unuttered question as to why a certain thinner should be used. For the purpose of discussion, I have taken a lacquer composition, because lacquers contain both active volatile solvents and diluents (non-solvents). The lacquer and thinner composition is an arbitrary one, but it illustrates the reason for the possible consequences."—THE AUTHOR.

ALTHOUGH THE purchase price of a thinner is a measurable item of finishing cost, its value in finish beauty is practically impossible to determine quantitatively. Oftentimes, however, the thinner may be the connecting link between a full warm lustrous film and a lifeless repelling appearance. Yet, after the thinner has evaporated it is not an integral part of the decorative or protective finish film. Many manufacturers (users of finishing materials) have turned to the purchase price of thinners as a means of reducing finishing costs, and have selected thinners lower priced than those recommended by their finish suppliers.

A change of thinner, unless made as a result of very careful selection, is an invitation to trouble in the finishing room, or to disappointing results. In considering the potential hazard in changing to a different thinner, the noncompatability of lacquers, lacquer-synthetics, varnishes and enamels of both the orthodox and synthetic types, must be recognized.

The class of permissible solvents and diluents is distinctive for each type of finish, as can be readily seen from the tabulation on the next page.

Chemically the lacquer solvents are confined to aliphatic esters, orthodox compounds to aliphatic and aromatic hydrocarbons, and synthetics to saturated aliphatic hydrocarbons and aromatic hydrocarbons. For each type of film-forming ingredient the solvent has the power of dissolving the filming ingredient. The non-solvents do not have this property, but have a natural tendency to mix readily and are effective in imparting a smoothness to the film deposited.

In designing any finish formula

Type of Finish	Film-Forming Ingredients	Volatile Solvents	Volatile Non-Solvents
Lacquers and Lacquer Synthetics	Nitrocotton Plasticizers Natural Gums & Resins Synthetic Resins	Acetate, Ethyl Acetate, Butyl Acetate, Amyl Acetone Mixtures of Ether & Denatured Alcohol	Benzol Toluol Xylol Petroleum Distillate
Orthodox Varnishes and Enamels	Vegetable Oils Natural Gums & Resins	Petroleum Naphthas Coal Tar Naphthas Turpenes Alcohols	Kerosene
Synthetic Varnishes and Enamels	Ester Gum Alkyd Resins Phenol Formaldehyde Resins	Turpenes Toluol Xylol	Petroleum Distillates (in admixture with solvents)

a great deal of skill is necessary in selecting suitable combinations of solvents and non-solvents. In the case of many formulas the ability of the finish in its liquid state to flow or spread out evenly over the work, and the strength of the dry film, depends upon a very careful selection of the non-solvent. Without a certain proportion of non-solvent the finish formula, in many cases, would not have suitable application properties. Each solvent and non-solvent has a characteristic evaporation rate and a properly balanced finish will contain at least one each of the solvents and non-solvents for suitable self-leveling properties within the drying time limits for that particular class of finish.

Owing to the numerous local variations in finishing, the finish manufacturer has to generalize to a certain extent to permit the consumer to reduce the finish in order to obtain optimum [best] results. Using the same finish, two operators working for different companies, will obtain varying results with any one finish formula — unless the spray gun characteristics are adjusted for by way of either gun pressure or thinning, or both.

In selecting a thinner for use with a particular finish formula,

the supplier gives consideration to the blend of solvents and non-solvents in that formula, and will recommend what he considers to be the cheapest but properly balanced materials for thinning that formula. Thus a lacquer enamel, having certain characteristics in respect to smoothness of film with freedom from orange peel, may be composed in its volatile portion of 25% ethyl acetate, 25% butyl acetate, 25% amyl acetate, as the solvents, and 25% toluol (non-solvent). The enamel is designed to take a 60% volumetric reduction with a recommended thinner for spraying consistency composed of 50% toluol (non-solvent), 30% ethyl acetate, and 20% butyl acetate. The addition of thinner changes the composition of the ready-to-spray mixture to the following composition:

Ethyl acetate	28%
Butyl acetate	22%
Amyl acetate	10%
Toluol	40%

For the lacquer formula under discussion this composition, in the volatile at spraying consistency, provides a smooth even film, and the ready-to-spray mixture is stable; that is the nitrocotton is still held in solution because of the richness of active solvents.

Let us assume the finisher is offered some other thinner for use with this enamel—a thinner that can be bought at a 45% saving. The lower priced thinner would undoubtedly be much richer in benzine, or leaner in its content of solvents such as ethyl and amyl acetates. When added to the lacquer enamel, this lower priced thinner might increase the non-solvent content at spraying consistency to 50% or 55% — sufficient to cause the nitrocotton to be precipitated (thrown out of solution), or in some other visible way it might impair the results.

Similarly with synthetics, a foreign thinner, unless its composition were in balance with the volatile portion of the finish, might cause the resins to be "kicked out"; or, the finish might not flow out in the excellent manner that the manufacturer claimed for his product when reduced according to recommendations.

In the orthodox finishes the solubility question is not as critical because their ingredients are generally soluble in almost all the aliphatic hydrocarbons. Use of a foreign thinner with orthodox finishes might, however, change the flow characteristics, particularly in the case of a dip finish.

Admittedly, the doctor's prescription is the best means of maintaining health and alleviating illness. Refusal to follow the expert advice of the finish supplier on thinning is an invitation to possible hazards, or to latent difficulties arising after the finished article has been shipped to a customer.

A B C of Plasticisers

An 80-page blue book, page size 5½x8½-in., priced at $1.25, published by Oil & Color Trades Journal, 8 Broadway, Ludgate Hill, London, E. C. 4, England. . . . A comprehensive, authoritative survey of plasticisers and flexibilizers for lacquers and plastics.

Chemical and physical properties of well known and comparatively lesser known plasticisers are given. It is especially useful because it covers British and continental, as well as American products.

Exclusive agents for this book in North and South America is The Chemical Publishing Co. of N. Y., Inc., 148 Lafayette St., New York.

Decorators' Exhibition

"I covered the American Institute of Decorators' show, with the thought that readers of this publication would be interested in knowing the new trends, as conceived by the decorators.

"Decorators, as you perhaps know, more or less set the styles for the following year. It is necessary that they keep ahead of the crowd (I guess it's just to justify their existence). . . . It was the decorators that started "Modern" on its way and now that we have it, they have jumped to the other side of the road.

"I thought the exposition was very interesting. It gives the manufacturer excellent food for thought as to the current straws in the wind. I have written this story more or less from a style angle — telling about colors, styles, blending, etc.—and I believe that manufacturers may get some ideas for themselves from the article."

Rosalie Flank

Illustration shows a garden arranged by Florence Ely Hunn. Color theme is blue, orange and yellow. The umbrella is blue; upholstering, yellow; wrought iron work, white enamel.

Forecasts New Styles

by Rosalie Flank
American Furniture Mart

STAGING their first comeback since 1931—the Illinois chapter of the American Institute of Decorators held their initial post-depression showing at the Palmer House in Chicago, April 12th to 17th.

Some 50 exhibitors, the cream of Illinois' decorative society, expressed their conception of forthcoming trends to a record crowd of some 5,000 persons who paid a $1.10 admission charge to see the proverbial "writing on the wall."

The showing from an economic viewpoint was gratifying in that it expressed the decorator's confidence in the return of better times. For the past six years, the public has been more concerned with the essentials of life than the luxuries, and the return of the decorator means the return to luxury and better living.

Modern to Be Replaced by Period Furniture

From a style standpoint, the showing was significant in that decorators have abandoned modern in favor of the more graceful

and traditional type of furniture. While the modern influence weaves its spell in decoration, backgrounds, accessories and certain refinements in line and detail, the exhibits for the most part showed a return to the lavish use of flowing curves, pointing to the return of a more gracious era. Only one exhibit was of modern design and this exhibit employed sleek, curved lines as the basis for the designs.

Interesting indeed was the extensive use of Queen Anne pieces, French Provincial and Victorian.

A flying trip through the exhibits reveals the following high spots:

Chippendale; Sheraton; Queen Anne

David Zork Co. showed a number of original Chippendale pieces including a secretary desk, a hall clock, and two arm chairs upholstered in antique leather. A Sheraton sideboard was adorned with two authentic knife chests, done in mahogany and placed at each end of the cabinet. Both the Chippendale and Sheraton pieces were well preserved and the rich, beautiful finish of the mahogany brought to mind the realization that new finishes may come and go, but the really true beauty of fine mahogany, expertly rubbed and finished and mellowed with the ages, will always be an inspiration.

An original Queen Anne bureau-desk in the James G. Skidmore exhibit had a tiny, pullout candle shelf and mirrored doors, with a crown etched into the glass. This was accompanied by an authentic Queen Anne chair and was fitted into a room with a number of interesting English antiques and two, two-decker wall tables, French Directoire in feeling.

18th Century Furniture

A feminine sitting room was arranged by Rosalie Roach Fassett by combining 18th Century French and Italian pieces. A wrought iron French Directoire iron day bed, used by officers in Napoleon's army, fashioned an interesting couch. It was upholstered in old Chinese tribute silk. In a number of exhibits white furniture, showing the grain of the wood, was used. A pair of 18 Century Italian white painted chairs were used in the sitting room and a 3-

The illustration on this page and on the page following show genuine period furniture, in an interesting group exhibited by David Zork & Co., Chicago, Ill.

drawer Venetian chest. Twin chairs upholstered in flowered linen completed the ensemble.

The Victorian reign, covering as it did several eras of taste, coupled with modified Regency, was the inspiration for an upstairs sitting room by Mabel Schamberg. Fuchsia (reddish blue-red) was the predominating color, a couch, modern chair, draperies and fringed table skirt that hung to the floor were repeated in this color. The decorative accents were blue.

Emily Kempson Dow showed a living room with a finely carved 18th Century sofa covered in green and crimson striped satin. A wall console with its accompanying antique mirror, a pair of walnut arm chairs and an 18th Century bergere in old blue damask completed the room.

French Provincial; Russian Peasant

A country breakfast room by Ernst C. von Ammon was done in green, white and cinneraria blue, the furniture consisting of various French Provincial pieces, painted white, against a background modern in color and composition.

One of the outstanding displays was a child's bedroom done in oak in the peasant manner. A low semi-circular play table had end panels of little Alsatian figures whose spreading headdress supported the curving top. The furniture had a decided Russian air and the bed, with its high headboard, was gaily painted in vivid colors. A French provincial chair, with reed seat furnished a quaint, harmonious touch.

An upstairs hall in a country house by Celia T. Sturm had furniture of provincial feeling, principally of oak. Of special interest was a dower chest of early Georgian make, over which hung a Delft rack, popular in that part of the 18th Century when Dutch ceramics were fashionable. An oak grandfather clock, with banding of walnut, was an interesting addition.

Wrought Iron Garden Furniture

A night setting in the garden was portrayed by Florence Ely Hunn. Blue, orange and yellow was the principal color combination used in the umbrella and cartridge type upholstery. A particularly interesting arrangement was a corner piece composed of

The fresh color and playful pattern expressed in this child's bedroom by Clark-Fulkerson, done in the peasant manner, makes an appeal to the child's fancy. The room carries a Russian peasant air; the chair in foreground is French provincial.

two wrought iron love seats; the arms formed the edges of a corner table built as part of the three section piece. Another interesting piece was a day-bed with graceful head and footboard used as a garden bench. Wrought iron trees, with interlaced ivy, showed an unusual treatment, and a tiny tea table of wrought iron was included as part of the display.

Metal Surface Preparation

A manual giving in detail methods for the application of sodium cyanide solutions in the preparation of metal surfaces is announced by The R. & H. Chemicals Department, E. I. du Pont de Nemours & Co. The manual gives a general outline for the various methods used in treating metal surfaces, with specific information regarding the use and handling of sodium cyanide in that field.

The preparation of metal surfaces is discussed under the following general headings: Steel finishes, metal surfaces, direct application of sodium cyanide, cleaning ferrous metal surfaces, preparation of hot rolled steel surfaces, cleaning non-ferrous metal surfaces, preparation of steel surfaces for enameling, preparing metal surfaces, and safe handling of sodium cyanide.

California Redwood

California master painters and decorators are being encouraged by the California Redwood Association to experiment in the proper treatment of California redwood for interior decoration.

At the California Council convention of the International Society of Master Painters and Decorators, Inc., held in Fresno the week of January 17, the redwood industry gave a cash prize of $25 and a beautiful redwood plaque to the member submitting the best finished panel of California redwood.

The Bowser Mir-O-Meter

The Bowser Mir-O-Meter, as the name suggests, is a system which measures, indicates and records the quantity of oil or tar being delivered to the furnace. In reality, it is a system that measures and records the amount of fuel consumed; and indicates and records the rate at which it is being delivered to the furnace. A brochure of several pages, 8½x11-in. describing and illustrating this new equipment, has been prepared by the S. F. Bowser & Co., Ft. Wayne, Ind.

THE FUNDAMENTALS OF SELECTING SUITABLE

Spray Equipment

by A. W. Christenson
Manager Detroit Branch
Binks Manufacturing Co.

If we desire better and more spray work at lower unit costs and with less wastage of material and time, we must have suitable equipment of adequate capacity for our various types of work.

In this article, a practical well-informed man points out some essential facts that will help every user of spray equipment to check up on certain things that tend to produce unsatisfactory results in spray finishing.

AT SOME TIME or other, production executives in factories and shops that do finishing, are faced with the problem of selecting proper and suitable paint spraying equipment. If the original selection is made with care, it will invariably result in considerable savings over the life of such equipment, through greater efficiency and service, and because of higher quality performance.

Reviewing briefly the mechanics of spray finishing, we find that in order to apply paint by means of a spray gun, we need the following fundamental items:

1) A spray gun.

2) A material container.

3) A rubber air hose of desired length, with connections.

4) An oil and water extractor.

5) An air pressure regulator with dial gauge.

6) An air compressor unit of sufficient capacity.

To this must be added safety and health protecting equipment such as exhaust fans, spray booth, suitable lighting, etc.

Selecting the Spray Gun

Of the first consequence is the matter of the proper spray gun. The importance of this selection cannot be overemphasized. While the spray gun itself depends on all of the remaining five items for its efficiency, it is, in the last analysis, the tool which actually does the painting, and upon which we are dependent for a proper paint film.

Bear in mind that equipment manufacturers have available many distinct models of spray guns, each for a different purpose and condition. Each model may also require a different volume of air for its operation. For example: A full production type of spray gun (capable of the very

greatest degree of atomization of the paint, the maximum speed of operation, and complete with all of the essential control features) would require more volume of air than the miniature type of spray gun designed to operate from a small portable compressor. The full production type of gun is intended for the establishment whose business is production finishing or painting. No substitute will do as well. A foreman finisher must stand or fall on the quality and the quantity of the work he is able to produce. The finest and fastest spray gun available is his first requirement. By it, he establishes his standards of performance, and these standards determine his returns.

The miniature gun, on the other hand, is available for "small work." Certainly these small type spray guns have found their way into numerous shops, and even factories, but their use in such cases is limited to work where the requirements of speed and quality of film are not of first importance. It is even true that certain skilled spray operators (given sufficient time and material) could produce fairly acceptable work with guns of low comparative efficiency, but it would not be fair, in these days of keen competition, to impose such a handicap on a paint department in which we hold any interest.

These two examples point out the two extremes possible in spray gun usage, but between these two types are found several models designed to fit various needs.

We now find, on closer investigation, that the high production syphon-type gun requires approximately 9-cu.ft. per minute of free air delivery for continuous and perfect operation. Graduating downward in efficiency, the gun next in line requires about 7-c.f.m.; the next 6-c.f.m., the next 4½-c.f.m., the next 3-c.f.m., then 2½-c.f.m. and finally the last about 1¾-c.f.m.

A Compressor of Adequate Capacity

It now becomes apparent that, having made a careful selection of the most suitable spray gun, we must make a more careful selection of the air compressor unit, as the continuous and uniform operation of one or more guns depends on sufficient volume of air at a given pressure at all times. How often this reasoning has been reversed would be impossible to say, but only too often the inexperienced foreman, purchasing agent or executive is apt to purchase a compressor first and then give consideration to the spray guns.

If the compressor happens to have a great enough output of air, no damage is done, but in most cases the trend is to a smaller size, and its user finds himself attempting to adapt a gun or nozzle to his air capacity rather than to quality of workmanship he set out to attain. For example, a compressor with a capacity of 6-cu.ft. per minute of free air delivery would not be great enough to sustain a spray gun in continuous operation that required a delivery of 9-c.f.m. And thus, with each succeeding gun, it would not give its intended performance if limited by inadequate air supply. The foreman would therefore be forced to select a gun of lower capacity, but in do-

ing so, he would sacrifice desired efficiency. Therefore a volume of air sufficient for the requirements of the gun is of prime importance.

Volume of Air; Pressure of Air

In connection with this fact there exists a confusing idea among many of our friends as to the relationship of *volume* of air to *pressure* of air. Very frequently we find that mistakes have been made in the selection of the air compressor because attention had been focused on the pressure that the compressor was capable of producing instead of the more important factor—the volume of air the compressor piston displaces per minute.

The volume of air displaced by the compressor would be determined by multiplying the area of the piston face by the length of the stroke by the number of revolutions of the compressor. This volume of air must, of course, be stored at a given pressure.

If a spray gun having a nozzle which permits 9-cu.ft. of free air to escape per minute is used in connection with a compressor whose output of air is only 6-cu. ft. per minute, we soon reach a situation where the gun has used the compressed air in storage and is "starving" for lack of sufficient air under pressure. The gun must then be closed off until the compressor has again "built up" a new reserve, but the process would surely be repeated and no effective results could be expected.

Pressure for ordinary production finishing purposes usually ranges from 80-lbs. down. High speed factory production sometimes requires air pressures as high as 100-lbs., but this does not usually apply to the average finisher's conditions. However, it does lead us to the subject of preparing the air for use for the spray gun.

Air Pressure Regulator

Given a sufficient supply of air to permit a uniform and uninterrupted service, we must condition the air before it is used so that it will best serve our purpose. Of first importance is the matter of air pressure regulation. The air pressure regulator with dial gauge is suggested because by its use air may be served to each gun at any desired pressure. Such pressure usually varies with different types and makes of paints, lacquers or enamels.

Lacquer usually requires less air pressure for proper atomization than does synthetic enamel, but no fixed rule can apply, as each paint manufacturer may vary the characteristics of his product so as to necessitate a change of air pressure with each change of paint. For instance: Most spray equipment manufacturers suggest an average atomizing pressure on production syphon spray guns for general finishing work of 50 to 60-lbs. On the other hand, there are synthetic enamels on the market which the manufacturers recommend be sprayed at approximately 20-lbs.

To meet this wide variety of requirements, a spray operator must have a regulating device in the air line to change to any desired pressure and to maintain it uniformly. With such a device, the maximum pressure of the compressor is reduced at the gun to a

predetermined setting best serving the purpose at the time.

It would be well to work out a chart containing a list of all the different types of paints that you would have occasion to spray. After proper testing, list opposite each material the lowest air pressure which you find will best serve the purpose. In any case where an air pressure range from 40 to 60-lbs., for example, would do equally well, always use the lowest suitable pressure, which in this case would be 40-lbs. The reason for using the lower pressure is to avoid "exploding" the paint more than necessary.

The main function of the nozzle is to mix air with paint in the correct proportions. Compressed air, when released, has a natural tendency to expand, and the higher the compression, the greater the expansion. Should a higher pressure be used than is really needed, there would be a decided tendency to "blast" out of the paint solution the very essential ingredients so necessary to proper flow and leveling action. These essential solvents have been introduced by the chemist, and he definitely plans on their presence in the applied film to insure the results he foresees. If, because of too high an air pressure, such important chemicals never reach the surface being sprayed, then only rough and sandy, or at best, eggshell instead of gloss finish results.

The air pressure regulator also prevents the building up of air pressure in the hose between the times that the gun may be in use.

Clean Air Is Necessary

The oil-and-water extractor should be given consideration in the same manner that you would consider any form of insurance. Be sure that it does what you expect it to do. Remember that dirt, dust, rust, scale, water and oil are among the worst enemies of a good paint job. The very nature of air makes it necessary to provide the means for extracting moisture, because all air contains moisture and because it is detrimental to lacquer and enamel films, moisture should be separated from the air before it is allowed to mix with the paint. Oil is even a greater hazard to fine work, and the utmost protection should be employed to guard against any possibility of oil passing from the compressor to the spray gun. By using a good oil-and-water extractor the finisher can extract any such foreign matter which might otherwise reach the nozzle of the gun, and he will thus save himself many hard and expensive hours of repair work.

In short, air is the "prime mover" which predominates the entire paint shop. By means of air the paint is atomized to exactly the right mixture. By means of air the shape of the fan of sprayed paint is formed. By means of air a thin and controlled film of paint is correctly applied. By means of air in sufficient quantity, thoroughly cleaned, thoroughly dried and with suitable pressure, the resultant better workmanship will prove the wisdom of careful planning and selection of equipment.

Some spray operators are so skillful with the spray gun that they can cut a satisfactorily sharp division between colors, at a beaded line, without resorting to masking.

Our Furniture Finishes

A REPLY TO AN INDICTMENT OF FINISHING MATERIALS & FURNITURE MANUFACTURERS

by H. R. Stewart

The writer, having started his apprenticeship in the manufacture of finishing materials some 12 to 15 years ago, has seen the transition from the old approved slow-drying finishes (which had and still have much to commend them) to the present quick-drying, rapid-production schedule finish.

★ ★ ★

THE BEST answer to "What's the Matter With Our Furniture Finishes?" is contained in one paragraph of the original article on this subject (March issue, pages 13 to 16).

"You can go into a store today and buy a 3-piece bedroom suite or an 8-piece dining room suite for as little as $69.00."

If this amount all went into the value of the furniture the manufacturer would have an easier task, but the dealer's profit is included in this figure, and the price the manufacturer receives does not give him much margin to go on. There is not a furniture manufacturer operating today that would not take pride in having all of the products that bear his name to go out to his customers with a smooth full finish. To do this requires repeated sanding and numerous coats of material. This, in turn, takes time and labor both of which mean mounting costs. The result is that a high-priced piece of furniture is available only to a limited market.

The furniture manufacturers are not only competing with each other but also with the automobile, electric refrigerator, and many other manufacturers of "luxury necessities." In order to do this they must resort to mass production and lower material costs. Cheaper wood and thinner veneers are used. When the cost of labor goes up, various ways to eliminate operations are studied. The number of sanding operations are reduced. Machine sanding replaces hand work. Combination stain-and-fillers are used to replace separate staining and filling operations. If the wood does not need filling, but just requires staining, it is possible, at times, to get the effect by using colored sealer.

Some concerns weathered the past few years only because they

were able to make these $69.00 sets of furniture. The schedule used was a spray coat of colored sealer and a coat of semi-gloss lacquer or varnish, with just a light scuffing-off of the nibs so that not too many imperfections showed through the final coat. At times the tops and flat surfaces were given a light machine rub.

Naturally, when the finishing materials for these cheap jobs are purchased, the squeeze is passed on to the finishing material manufacturer. The paint, lacquer, or varnish manufacturers are in no way different from manufacturers in any other industry. They have their labor problems, mounting raw material costs, and also they must show some profit or cease to exist.

At times the requests received are quite flattering to our abilities. For instance, one received quite a while back was worded about as follows: "The material we are receiving is entirely satisfactory in regard to the resultant finish obtained. However, the price is too high for the use it is to be put. We wish to obtain a similar finish on a faster schedule with a lower priced piece of goods."

This manufacturer was cutting costs in two ways; first, by obtaining a cheaper finishing material; second, by speeding up the drying time.

In doing this he required less drying space before the furniture was packed, therefore he was able to get a larger production out of a smaller area, with a correspondingly lower overhead per piece.

Finishing material manufacturers are not magicians but, as a rule, they do manage to supply a product with properties fairly close to those desired. Of necessity, some of the qualities of the higher-priced goods are sacrificed in order to meet this demand of competition.

High-Quality Finishes Available

All of this does not mean that a high-quality fast-schedule finish can not be produced. There are finishes on the market that will stand more use and abuse than was ever dreamed of giving to the old time furniture finishes. There are finishes that are impervious to alcohol and caustic; also others that are so mar-proof that it is almost impossible to scratch them. Imagine a finish two years old that, when it is cut into with a knife, can be shaved down just like a piece of horn. Naturally these are expensive, but they are products of the present scientific trend of the finishing material manufacturers. With the accurate methods of testing raw materials and the exact standards set up both by the source of supply and the purchaser of these materials, it is safe to say that our finishing materials "such as varnish and shellac" and all others run much more uniform today than they did years ago.

What Will Sell Better Finished Furniture

With so much of a greater volume of the cheaper furniture being sold, it is natural that all finishes are judged and condemned by the appearance and durability of this type of product. The proper place to improve our furniture finishes is through the furniture dealers. If they can be educated to sell their customers on the idea that a quality finish on the furni-

RUB and POLISH in ONE operation

Double Actions saves Time and Labor

For Lacquer and Synthetic Finishes

For the final rub down and polish —here's a unique and efficient mixture of rare oils and abrasives.... Imperial Rubbing Compound. It's fast! It's economical! Does two jobs in one operation. By all means, the most satisfactory method of rubbing and polishing lacquer and synthetic finishes.

Imperial Rubbing Compound acts first as a gentle abrasive which quickly smooths out "orange peel," and rubs down the scratches caused by sanding. Then, with no interruption in labor, the compound becomes a fine polish — its *"Double Action"* saves time and labor.

Available in two grades: Grade "E" produces the higher finish — Grade "XX" is faster, not so lustrous.

WILSON IMPERIAL CO., 115 CHESTNUT STREET, NEWARK, N. J.
MAKERS OF LINGERWETT

FREE OFFER

Mail the coupon for a free demonstration can of Imperial Rubbing Compound.

WILSON IMPERIAL COMPANY, 115 Chestnut Street, Newark, N. J.

Gentlemen: Please send me free of charge a demonstration can of Imperial Rubbing Compound. Check choice.

☐ Grade "E" ☐ Grade "XX"

Name.....

Street.....City.....

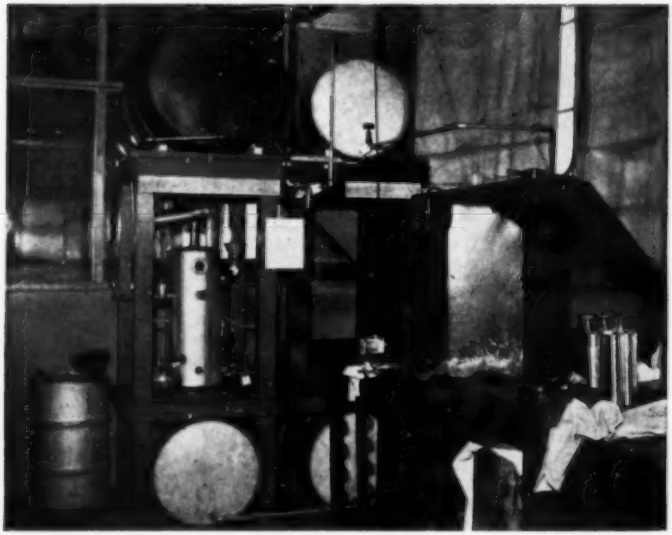
E-57

ture they buy is actually the cheapest, not only because of its better appearance in the store but because of its retention of this same good appearance after several years of use, then we will be on the right road to better furniture finishes. Until such time occurs, the storage and warehouse companies and their refinishing repairmen will have to bear the burden of this flood of cheap furniture.

The furniture manufacturer only makes what the public will buy. If the public can be educated to refuse to buy this cheap type of product, it will quickly disappear from the market. A quality product benefits all. The purchaser receives years of service for money well spent. The dealer builds good will and repeat sales for himself, all of which is passed on in turn to the manufacturers that make up these products.

Total sales of finishing materials for March, 1937, were $8,000,000 ahead of the sales for March, 1936, according to the U. S. Dept. of Commerce figures.

SOLVENT RECOVERY STILL FOR SALVAGING USED SOLVENTS



Typical installation view of a Barnstead solvent recovery still . . . . this one for recovering carbon tetrachloride in the Fyr-Fyter Co.'s plant at Dayton, Ohio. This particular still is in service reclaiming the carbon tetrachloride used for washing new fire extinguishers. Now, instead of being thrown away, the unclean solvent is returned to its original cleanliness and purity by the still. The same solvent is worked over and over again. Photo., courtesy of Barnstead Still & Sterilizer Co.

PRIMACO . . . A NEW LINE OF PRIMARY NON-GRAIN RAISING STAINS

Primaco Stains have exceptional non-fading properties, and are of a concentration that permits considerable reduction to produce the most popular shades.

Another Glidden Laboratories development!

A COMPLETE LINE OF GLIDDEN 4-HOUR PASTE WOOD FILLERS

A complete line of wood fillers that dry to recoat in four hours. Stay in suspension, have buttery smoothness, clean up in an excellent manner, and take either lacquer or varnish finishing coats.

Quality products of Glidden Laboratories!

A NEW LINE OF GLIDDEN GLAZES FOR RICH FINISHES

Brand new glazes that have smooth desirable working properties, and are made in rich shades which produce the harmonious color attractiveness so much desired in the ultimate finish.

THE GLIDDEN LINE OF FURNITURE FINISHES IS COMPLETE

Our practical service men are available at all times to demonstrate these finishes, as well as varnish and lacquer finishing coats that will best meet your production needs.

Send your inquiries now, to Department D-3

THE GLIDDEN COMPANY • National Headquarters, Cleveland, Ohio

Factories in: Reading, Pennsylvania • Chicago • St. Louis • Minneapolis • New Orleans • Los Angeles • San Francisco • Toronto, Canada

TIME-TESTED

NOW!

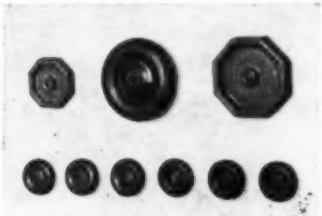
GLIDDEN

Everywhere on Everything

GLIDDEN PRODUCTS NOW CARRY THE FAMOUS "TIME-TESTED" MARK OF QUALITY

To Finish Small Hard Rubber Wheels

We have been informed by others doing a similar type of business that it is possible to successfully tumble some items in lacquer or enamel to get a thorough over-all covering at a minimum expense. We are enclosing with this letter a few of the items we wish to cover, that we are now covering in a rather expensive manner. We would like to know whether you can place us in touch with an enamel manufacturer or a lacquer manufacturer who can get us started on this type of work. The items referred to are wheels in every case. Everything we are now making is dipped, and we are of the opinion that these articles will have to be dipped



These rubber wheels can be coated rapidly and economically in a whirling machine.

always. We know nothing of the tumbling process, therefore we do not know its limitations or advantages. We would like to get in contact with someone who can thoroughly inform us on all phases of this process.—B. Q. Co. (Rubber Products).

EDITOR'S NOTE: A few of the samples are shown in the accompanying illustration, the round wheels being black, while the octagon wheels are red. The smallest wheels are 3/16-in. thick by ⅜-in. in diameter; the largest, 7/16-in. thick by 1⅜-in. in diameter.

These little hard rubber wheels can be tumble finished in a wood or metal tumbling barrel, but we believe the finish coatings can be applied more satisfactorily and less wastefully by using a whirling machine such as one of those advertised on pages 57 and 63 of April INDUSTRIAL FINISHING. The Editor will welcome any other suggestions in reference to the finishing of these hard rubber wheels.

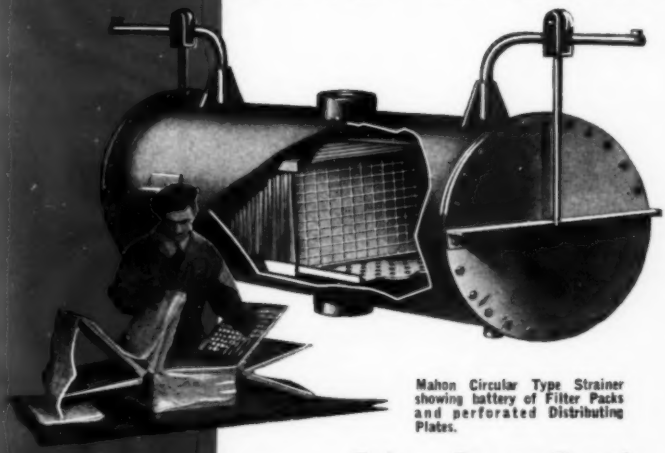
Questions Answers

Meter to Measure Flow of Paint

In our spray room we need a small metering device that will measure by volume the amount of paint, enamel or lacquer going through a material hose during any given period. What we have in mind is some sort of a small meter that would fit into the material hose somewhere between the pressure tank and the spray gun, in order to give us an accurate measurement of the amount of liquid material being used by the spray gun.

The only method we have now is to open the pressure tank and measure the material both before

NOW! Renewable STRAINERS



Mahon Circular Type Strainer showing battery of Filter Packs and perforated Distributing Plates.

. . . . . Filter Pacts Easily Removed and Reloaded

Mahon Renewable Strainers have solved many problems in connection with Hydro-Filter Spray Booths and Industrial Washing Machines where re-circulated water requires an efficient Strainer with a minimum resistance to flow. These new Strainers are available in two types with capacities ranging from 60 G.P.M. to 840 G.P.M.—the rated capacities providing one square foot of filter area for each 5 G.P.M. handled.

Complete information on request.

M A H O N

THE R. C. MAHON COMPANY
DETROIT—CHICAGO

Designers and Manufacturers of Industrial Washing Machines, Rust-Proofing Machines, Hydro-Filter Spray Booths, High and Low Temperature Ovens, and many other units of Special Production Equipment.

and after any particular test or short run. This is unsatisfactory from our standpoint, as we can not be doing it continually without seriously interfering with production. On the other hand, we have found that unless we continually watch this factor, our material costs are apt to completely run away with us and show very little relation to the estimates resulting from actual tests.

We will appreciate any information you can give us concerning this, or if you have no information, we would appreciate you turning this letter over to some concern whom you think could assist us.—S. L. Co. (Makers of Toys).

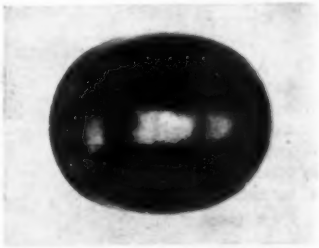
Our observation has been that these meters are required in only a limited way and mostly for laboratory use.

The meter we use in our testing laboratories, to determine paint flow and spray gun nozzle capacity, is the product of the Buffalo Meter Co., 2917 Main St., Buffalo, N. Y. According to the claims of the Buffalo Meter Co., their Niagara meters for measuring paint and lacquer products have been successfully installed in a number of large plants to measure the quantity of finishing material that is consumed. Our experience with the meter has been satisfactory and we have but one caution to suggest. That is: It has been found desirable not to leave the meter in the paint line for more than two or three days at a time. At the expiration of this period it should be removed and cleaned thoroughly.

We presume that this is a condition which would be encountered in any meter through which paint, lacquer or other finishing material is passed.—DEVILBISS CO.

Paint-Masking Problem

We have a problem on which we are wondering whether or not you can help us. In order that you may understand this thoroughly, we are forwarding you one of our crowns which we want to stripe. We have endeavored to do this with scotch masking tape, but this is so slow that we cannot



The dark portions are painted black.

get any production on it, and thought probably you could give us some idea as to how this could be done on a production basis.—C. W. Co. (Fiber Products).

EDITOR'S NOTE: The sample crown submitted is evidently made of brown fiber about 1/16-in. thick. It measures 3⅝-in. deep, 6-in. short diameter and 8-in. long diameter. As shown in the accompanying illustration, the three stripes are each 1-in. wide, but these are the parts left unpainted. The other parts are painted black.

Our suggestions are as follows:

In looking this over, we agree that you have a problem here in doing a neat, clean-cut job on a

ADVERTISING PAGES REMOVED

rapid and economical production basis. Off hand, the only thing we have to suggest is the possibility of making and using a formed mask faced with about ⅛-in. thickness of rubber (so it will be resilient). Then press the crown into position against this formed mask so that all joints will be tight (as tight as masking tape sticking directly to the crown). Then spray the black paint or enamel through the openings of the mask. After spraying, it would be necessary that the crown be pulled out of the mask carefully so as to avoid swerving it sideways and smearing the edges. Perhaps an arrangement could be made so that the crown could be pressed to and removed from the mask mechanically. The mask would probably have to be cleaned frequently with a solvent to remove accumulations of paint at or near the edges.

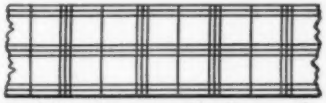
If it were possible to make a silk screen stencil that would closely fit over this crown, or into which the crown could be pressed, the stencil process might be used effectively.

NOTE: INDUSTRIAL FINISHING *solicits suggestions for the practical solution of this problem, and will publish and pay for the best answers submitted.*

Printing Fine Lines on Colored Leather

Can you help us locate someone who makes roller-coating equipment for printing, similar to the small sample which we are enclosing? This sample is on leather from a dog harness, presumably printed on lengths of leather about 25-in. long and about ¾-in. wide, printed in two colors. If you can help us locate such a machine, we would be very much obliged.—B. R. Co. (Leather Finishers).

EDITOR'S NOTE: The sample is a dark red or maroon colored leather with white and black parallel lines crossing at right angles, as shown in the accompanying drawing. The white lines show clearly but the black lines do not show very distinctly against the maroon background.



Black lines here are white lines on the maroon colored sample.

The following suggestions for printing these lines are submitted by Mr. H. W. Parmele of the Naz-Dar Co., Chicago, Ill.:

It is not practical to adapt a roller coating machine for printing purposes, as the material that is used for printing would necessarily have to be different from the material used for coating—and the distribution system for the printing machine is entirely different. A cylinder printing machine can be had for this purpose, but I do not believe that you would find it practical for your purpose.

To begin with, these machines are quite expensive and the copper rollers which are used for making the impression cost, I believe, in the neighborhood of $1,000, exclusive of the machine itself.

You would also have difficulty

in printing white on dark red or maroon color. In regular printing two and three, and sometimes four and five, impressions are necessary to secure a good white on a dark background and, in this particular case, the problem would be even more difficult of solution.

Why not use the silk screen process? White or any light color may be printed over red, black or any dark background in one impression. We have solved many printing problems on leather by suggesting the silk screen process, and it is being used successfully for that purpose. I believe that you would find it practical to print pieces of leather in full length and in sufficient width to print any number in widths. After printing the leather could be cut to the proper size.

Handling it this way, production would probably be ample, as you should have no difficulty in making from 200 to 300 impressions per hour. Therefore if ten are printed at one time, the printing speed would be the equivalent of from 2,000 to 3,000 per hour. In addition, the silk screen process represents no great outlay for initial equipment. All that you will require will be a screen plate and sufficient paint to run off the job.

STREAMLINED BEDROOM SUITE IN PLATINUM BLOND FINISH

Albino mahogany in a platinum blond finish is the wood used for this streamlined bedroom suite. Color notes are effected in the draperies and in the soft carpeting. Grace Hayes, screen and radio actress, finds the large mirror to her liking. There's a stocking compartment in the bench, a slipper compartment in the vanity, and a place for hats is combined with the chest. Drawer pulls are of coral catalin and gold. Designed by Julius Fligelman, President of Los Angeles Period Furniture Company, Los Angeles, California, and shown at the Los Angeles Furniture Mart.

SPECIAL EFFECTS AT NO EXTRA COST!

MULTIFORM FINISH

Give your product exclusive pattern effects at no additional expense! Step up its appearance with a simple application of Multiform Finish.

A feature of this remarkable product is its unlimited color range—enabling you to produce countless patterns and designs. Included are Porcelain, Granite, Marbelizing, Mother of Pearl and spatter effects!

Simply apply Multiform Finish by ordinary spray method. No special equipment is needed!

Multiform Finish cuts production time. One entry into the spray booth completes the entire process. The synthetic ground coat bakes within 35 minutes!

You can obtain Multiform Finish in both lacquer and synthetic enamels.

Send for the free bulletin containing complete information about Multiform Finish. The six specimen sheets and suggested baking schedules will show you how Multiform Finish cuts production time. And how it can give your product marked competitive advantages. Simply write:

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Modern Boat Painting

(PART II . . . METAL BOATS)

by George A. Endom

IN THE REPAINTING of metals on boats practically the same preliminary procedure must be followed as on wood, with the exception noted that the surface requires considerable more attention and care. Where, usually, there is fairly good adhesion of previous coats of paint and varnish on wood, due to their penetration into the grain, this is not generally the case on metal. Except for the slight penetration into the pores of the metal, after the vehicle of the paint has become completely oxidized, there is nothing left to retain the bond of adhesion to the surface. Where there has only been a thin film of paint, varnish or enamel, the signs of paint deterioration and subsequent corrosion appear as dull spots first; then they may appear as chalking, and finally they may show rusted areas. All of this occurs, of course, without flaking, blistering or checking; this would only indicate that the surface had not been repainted soon enough.

When this condition first appears on a wood surface, there generally remains in the grain and surface fibers of the wood sufficient vehicle oils to give "tooth," and to present an adhesive surface to the new coatings by amalgamation of the oils in the new paint with those remaining (though partly oxidized) oils in the old coating.

In the foregoing it is assumed, of course, that the paints, varnishes or enamels were of high grade materials and that no attempt is being made to change from an oil-base finishing scheme to a pyroxylin lacquer coating. If the latter is being attempted, an entirely different procedure must be followed.

Even in those instances where a heavy film has been built up on wood (due perhaps to several coats having been applied over a period of years) there still will be ample bond for the following coats after the loose paint, from flaking or peeling, is removed. On wood, except for appearances, it is not necessary to remove all of the paint over an entire surface; you remove the paint only where it has poor adhesion. As a general rule, on metal, when flaking, cracking, chipping and blistering appear, it will be found necessary to remove the entire coating over most if not all of the area affected.

Overloading an Area with Paint

It seems relevant at this time to remark that there is ample

SALES SOAR WHEN YOU USE AN A & W "TAILOR-MADE" FINISH

Metal products... whether finished in the flat—such as containers and closures—or spray or dip finished—such as office equipment and partitions... can be a big headache to the sales department. Unless the finish stands up under the grinding punishment of stamping and forming... of assembling and handling, such products reach the sales floor in a sorry condition.

Overcome that problem in your plant by using an A & W "Tailor-Made" finish... a finish that is prepared specifically for your requirements... a finish that will take the impact of a stamping press and that won't sheer back.

The A & W representative has facts and figures on finishes that you need. See him... and send your sales soaring with the extra "eye-appeal" that a "Tailor-Made" finish will give your product.

AULT & WIBORG CORPORATION

NEW YORK, N.Y. CINCINNATI, OHIO

proof that any given area will only support and retain a certain maximum thickness of applied film. This varies with the type of surface—absorbant or non-absorbant. Also, adhesion of paint film to a given surface, beyond a certain maximum thickness, varies considerably with the type of materials the paint, varnish or enamel contains.

For example, under proper conditions, a considerable heavier

A new stainless steel boat in course of construction. Notice welder at work.

film can be built up, without danger of flaking, from a finishing material that dries by oxidation (long-oil bases or some synthetics) than can be accomplished by a material that dries by evaporation; namely, pyroxylin lacquers, etc. There are exceptions to which this rule does not apply (especially when fabrics are involved) because added plasticizers must also be taken into consideration, but these exceptions merely give added support to this statement. Other factors that must be considered in determining the thickness and weight of a protective film applied to any surface, and which are responsible for, and which control, the adhesion to that surface are the difference between the contraction and expansion, under wide changes of temperature, of the metals and the protective film.

Metals are peculiarly susceptible to these changes and while a finish may be truly flexible it may not contract and expand at the same rate of speed as the metal surface to which it is applied. This is particularly true when the metal is in thin sheets and the paint film is excessively thick. It can be readily understood that, regardless of the quality of the coating material applied and the care exercised in its application, this difference of contraction and expansion would rupture the bond of adhesion and cause the finish to peel. Moisture, vibration and abrasion would accelerate this condition, and I have seen many instances where finish failure has resulted from just this fault: applying too thick a film to a surface when a coating only thick enough to protect and seal the surface from the effects of exposure would prove much more satisfactory.

Where Priming Is Mandatory

There are still a great many more reasons that could be added to the foregoing, but what has been outlined should prove sufficient to enable the one repainting metals to judge when it is necessary to remove (by scraping, burning or washing) the old finish entirely, or only such areas that are flaking, cracked or which show dried blisters.

If the entire old finish is removed, the bare metal should first be primed before any paints or enamels are applied. The primers found most satisfactory at the present time are synthetic zinc chromate, lead chromate or red iron oxide — all of which are equally effective if used in the proper place and for the kind of work for which they are intended.

* * To Help You Find the One Best Enamel For YOUR Product

Hundreds of manufacturers of many kinds of products use Day's Enamels. They have found that these materials may be depended upon to make their products outstandingly attractive. Our services consist of these essential functions:

1. *Creative facilities in our well equipped finishing laboratories.*
2. *Complete range of materials — all types of Enamels for all types of application including spray, dip, brush, roller, tumble, squeegee and silk screen.*
3. *Service men in most parts of the country to advise in the selection and application of the correct Enamel for your requirements.*

You, too, can profit from the use of Day's Enamels prepared for your specific requirements. Send small articles direct to us for a finishing demonstration. Or give us details of your product and requirements.

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CHICAGO

If only the loose sections of finish are removed and the balance adheres tenaciously (some of these old finishes seem to become part of the metal to which they were applied) then I would recommend the lead chromate or red iron oxide oil-base primers for the bare sections. The reason for this is that if applied properly and allowed to dry for at least 24 hours before the outer coats are applied the vehicle in these primers will penetrate by seepage into and often under the edges of the old finish, resulting in a perfect bond between the two.

Treating Rust Spots

Rust spots on iron and steel should be treated to render the rust inert. If active, the oxidation will surely continue under the paint or primer, resulting in poor bond of these coats to the surface. If rendered inert, it is not necessary to remove all traces of this form of iron oxidation but only the loose particles. This subject was thoroughly explained in the issues of March and April, 1935, of INDUSTRIAL FINISHING, and needs no further repetition at this time.

Zinc Chromate, Red Oxide Primers

On the subject of metal primers, remember that the synthetic zinc chromate primer will give best results when reduced at approximately the rate of one part primer to two parts of toluol. At times the primer may be reduced as high as 300% but it is not advisable to reduce it further. A good method of determining the proper thinning of this primer is to coat a small panel. Do not attempt to secure "coverage" of color or an opaque coat, but when a yellowish green tinge is secured, allow the coating to dry 15 minutes. If your material has been sufficiently reduced it will be impossible to remove the primer, even by scraping it with a knife. This primer can only be applied by spray gun and, as in all fast-evaporating coatings, a wet coat should always be applied.

Lead chromate and red iron oxide primers should not be reduced more than 25%, with the balance of favor leaning toward a smaller percentage.

Small boat with metal shell or exterior.

Synthetic zinc chromate primer is in greater favor because of its speed in drying (it can be recoated in an hour under proper drying conditions) but it has the disadvantage of not being satisfactorily applicable by brushing. Lead chromate and red iron oxide can be brushed, but they require at least overnight drying when applied in this manner to give the most satisfactory results. Do not use any pyroxylin primers where metals are to be exposed to

52C-390 CLEAR PERSPIRATION RESISTANT LACQUER

successfully solved the finishing problems of a large manufacturer of novelty metal pencils. Due to the acidity of human perspiration, the ordinary types of lacquers failed in from one to six weeks. Pencils finished with Stanley Colored Lacquers and a top coat of *52C-390* Clear Perspiration Resistant Lacquer, after months of everyday use, showed no indication of failure of the lacquer film.

Flashlights similarly finished have been used daily by theatre ushers for many months with equally satisfactory results.

***52C-390* has excellent hardness, adhesion and resistance to alcohol.**

THE STANLEY CHEMICAL CO.

EAST BERLIN, CONN.

LACQUERS · SYNTHETICS · ENAMELS · JAPANS

A Subsidiary of THE STANLEY WORKS, NEW BRITAIN, CONN.

the elements as few, if any, of these are effective against corrosion.

One of the larger manufacturers claims to have a glyceryl phthalate enamel that adheres tenaciously without the use of any primer, but since the lead chromate primer they manufacture is one of the best I have used, I think it wise to follow a conservative method and always use a primer, even under these types of enamels.

The Finish Coats

Having cleaned and primed the metals where required, apply the first coat of paint to these surfaces.

If you are using a standard boat paint, reduce the first coat according to the manufacturer's directions for that particular type material.

If an enamel is used, especially on pleasure craft or for the more decorative finish, it is advisable to have the first coat of material a flat paint reduced approximately 30% to 50%. Use only the brand of flat paint recommended by the manufacturer of the enamel you intend to use, and follow this manufacturer's instructions as to material for thinning and the amount. Since the pigment content varies with the different types and brands of finish, the manufacturer knows just what treatment his product requires in applying it.

Over all flat paints it is advisable to apply two thin coats of enamel, rather than one heavy coat, allowing sufficient drying time between each coat. This is especially desirable in white or light colors if a hard glossy surface is desired. Sanding between coats is necessary if only to remove surface dust. Most painters, in applying this type of finish, like to "lay-off"; that is, brush in one direction, one coat one way, up or down; and brush the following coat at right angles to the previous one. In theory this is very good, but if the enamel is being applied at the proper viscosity and under the right temperature conditions, its flow-out qualities should obliterate laps and brush marks.

On the more utilitarian type of boats, two coats of any reputable boat paint should be sufficient over newly primed metal. The first coat is applied to the new work and allowed to dry. Then a second coat is applied over old and new paint alike. These boat paints can be applied quite heavy in body and, if brushed out well, quite freely in quantity. But as boat paints and enamels are expensive, as compared to other finishing materials, an even covering coat at regular intervals is all that should be required.

Use deck paints for decks and other paints for the sections for which they were formulated. No one would use flat finishing varnish on the outside of a house or house paint on a piano and expect good results, so one should apply this same common sense to painting a boat.

Boat Bottom Paints

Never use any paint on a boat bottom, below the water-line unless it is distinctly a boat-bottom paint.

There are a considerable number of bottom paints on the market. Prices per gallon range from the ridiculously low to the exhorbitantly high; and in several in-

SHERWIN-WILLIAMS

INDUSTRIAL FINISHES

At Emil Steinhorst & Sons in Utica, N.Y., it's Kem Art Metal Finish that goes on every Fitzgibbons Steel Boiler jacket—chosen because this durable, colorful and beautifully textured one coat finish insures uniform results. It requires no undercoater, and bakes to a perfect wrinkle.

Let the S-W Finish Engineer and S-W Industrial Color Service solve your finish needs. Write The Sherwin-Williams Co., Cleveland, O., and principal cities.

stances the initial cost per gallon does not necessarily guarantee the quality or effectiveness of bottom protection. It is therefore necessary to use another method of selection.

It has been found that pure copper is one of the best materials for this type of paint. Boat bottom paint must act as a deterrent to various types of marine growth and pests that become attached to the bottom, because if these growths are allowed to increase without some deterring influence they will cause corrosion to the surface to which they adhere and also reduce the speed of a vessel considerably.

For example, barnacles, which are a particular pernicious type of marine pest, attach themselves by suction to the bottom of a boat. After a time other barnacles attach themselves right over the first ones until, eventually, they have formed carbuncles as large as a man's fist. Mariners have informed me that these pests can even affect the handling as well as the speed of smaller craft.

Now all is not gold that glitters. Neither does every copper bottom-paint contain copper. Many contain only chemicals with copper sounding names. Others that do contain copper have insufficient quantities of that element to be adequately effective, or they have not the other necessary ingredients to act with the copper. Some are formulated with a vehicle that is not sufficiently flexible or that is not corrosion resistant. There are several that are satisfactory and INDUSTRIAL FINISHING Magazine can probably furnish the names of these manufacturers. It would be wise to study this carefully before purchasing your bottom paint, as there is a wide difference of opinion regarding the relative merits of various brands of this type of paint.

Some can be applied without primer, but where the work warrants the additional cost a primer is advisable. If you have to paint both types of boats, wood and metal, select a bottom paint that protects both of these materials.

A Few Suggestions

In patching or repairing any section of a metal boat, especially below the water line, it is advisable to apply red lead in oil or a good bottom paint between the faying surfaces of the laps—and remember especially to get an excess of either material around the heads of rivets and in crevices.

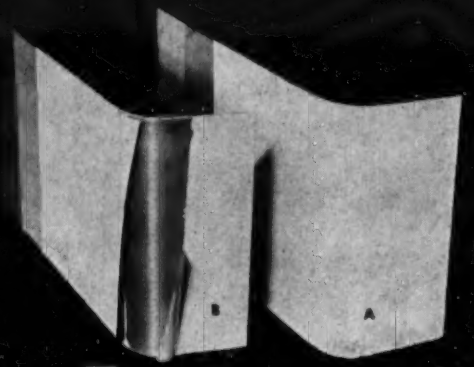
Remember that the sections not seen and those hard to get at, are the ones that should receive the most attention in repainting. While you can probably get a wonderfully pleasing appearance on the visible surface of the boat, the durability of the finish will be reduced if not spoiled by corrosion forming unnoticed until it has eaten entirely through a plate or sheet, or around the inside end of a rivet, or caused an unsightly stain on an otherwise beautiful finish. Inspect thoroughly and apply paint conscientiously wherever you have a doubt as to sufficient protective coating.

After a boat has once been painted properly, and all inside corners, angles and behind bows have received their full quota of paint, any subsequent repainting through the years will be much more easily accomplished.

THE ARCO COMPANY CLEVELAND LOS ANGELES

A New Synthetic Lacquer— THAT CAN TAKE IT!

Another scoop for Arco Research Laboratories: a high-speed, high-lustre synthetic system . . . long enough and tough enough to eliminate short film cracking at joints and mouldings. Note how conventional lacquer (panel B) "sheets" away to bare metal while Arco Synite Lacquer (panel A) remains impervious to severe cold and bending test. Especially adapted to use on Bus, Trailer, and Commercial Bodies. Send for details.



ARCO

ARCO Synite Lacquer System

THE ARCO COMPANY CLEVELAND LOS ANGELES

"Hammerkraft" Hammered Metal Effect

"Hammerkraft," a new hammered-metal effect capable of being produced in various colors, is a product offered by the Hilo Varnish Corp., 44 Stewart Ave., Brooklyn, N. Y. According to the company's bulletin:

"Many color combinations may be obtained by mixing metallic powders or pastes with Hammerkraft Enamel. The Hammerkraft effect is produced in a two-coat application of the same material, but each coat must be applied differently.

"For application, mix ½-lb. of aluminum paste or powder to one gallon of Hammerkraft Enamel. (Mix only enough for one day's production). For the first coat, use this mixture reduced to 7 parts to one part naphtha, spraying it from a regular spray gun at 45 to 50-lbs. pressure. Within ½ hour after applying this first coat, apply a coat of the mixture, full body, spraying it from a pressure cup or tank with a spatter gun at 10 to 12-lbs. pressure.

"Permit the work to air dry 24 hours, and then apply a finishing coat of Hammerkraft clear varnish for a glossy finish. If a rubbed effect is desired, rub lightly with pumice stone and crude oil after 36 hours of air drying, or use Hammerkraft dull varnish in place of the clear varnish.

"The true rounded hammered effects can be obtained readily by applying liberally the second coat of Hammerkraft finish and by placing the coated surfaces in a horizontal position until the finish is set."

Lampshade Lacquer

A bulletin from John W. Masury & Son, 44 Jay St., Brooklyn, N. Y., reveals the following information about the "Masuron Lampshade Lacquer System":

The "Masuron System" is one that involves spraying a special lacquer on transparent acetate sheeting.

The method of procedure is as follows:

1) Select a shade fabricated from pleated acetate sheeting and spray the outside with "Masuron" white lacquer.

2) "Masuron Lampshade Lacquers" should be reduced in the ratio of one part "Masuron Thinner" to one part lacquer, and should be sprayed at an air pressure of 70-lbs.

3) The tint or color coat should be sprayed over the base white coat only after 30 minutes or more have elapsed.

Only one color sheeting need be carried in stock, allowing you to offer an unlimited color range in any quantity at short notice.

What's New...

Perspiration-Resistant Lacquer

The Stanley Chemical Co. of East Berlin, Conn., has developed a clear perspiration-resistant lacquer which also has excellent resistance to alcohol. According to the company's statement:

"Human perspiration very quickly and completely destroys ordinary lacquer films. The perspiration of some people is more acid than others, consequently more destructive to the lacquer film.

"Due to the rotting effect of perspiration on ordinary lacquer coatings a large manufacturer of metal pencils found their lacquer finish failed in from one to six weeks. Pencils finished with Stanley colored

A GRACEFUL FIGURE contributes much toward feminine comeliness . . . but it takes a clear velvety skin, a lovely complexion and the fine touch of make-up for the real beau ideal.

And with commercial products, too, the fine touch of make-up or finish is what brings the reward of beauty . . . attractiveness . . . sales-appeal.

Let us tell you how our Creative Studio can add that fine touch of make-up to your products. No obligation whatever.

Rockford Varnish Co.

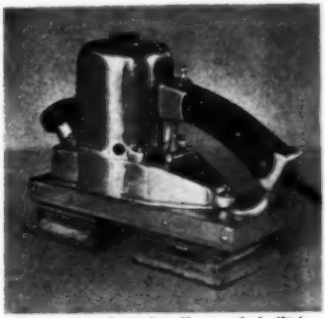
ROCKFORD, ILLINOIS

lacquers and a top coat of No. 52C-390 Clear Perspiration-Resistant Lacquer, after months of every-day use, showed no indication of failure of the lacquer film. Flashlights, similarly finished, have been used daily by theater ushers for many months with equaly satisfactory results."

Portable Electric Sander-Rubber-Polisher

Streamlined in design and having a rhythmic balanced mechanism that produces a smooth quiet reciprocating motion to the two rapidly moving blocks which simulate a tremendously speeded up hand motion, this new portable electric machine is adaptable to a wide range of work in several different industries.

Fitted with abrasive paper or cloth drawn tightly over the pads, the machine can be used for smoothing the surfaces of bare wood or metal, or for removing old coats of paint or varnish, or for sanding lightly between coats in the course of the finishing process. Adaptable to either dry or wet sanding.



Has convenient handles and built-in starting switch.

With only the felt pads exposed, the machine serves as an excellent portable rubbing machine, working with pumice and oil, pumice and water, or with any other rubbing or polishing compound.

With polishing cloths or sheep's wool drawn over the pads, the machine becomes an ideal rapid polisher for furniture, caskets, woodwork, automobiles or any finished, plated or waxed surfaces capable of being polished. Can be used on flat or curved surfaces and against the shoulders of inside corners.

A handy extension cord plugs into any electric light socket; for A.C. or D.C. electric service, 110 to 115 volts;

WIDE WET SPRAY

Milburn Paint spray guns deliver a wide wet spray which speeds the job and produces a better finish.

Write for new catalog.

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Pyroxylin Lacquers — Synthetic Enamels — Insulating Varnishes—Baking Enamels

IMPERVIOUS PRODUCTS
FOR INDUSTRIAL USE
IMPERVIOUS VARNISH COMPANY
KOPPERS BUILDING, PITTSBURGH, PA.

Protective Coatings — Finishing Varnishes—Primers and Surfacers

ENAMELS IMPERVIOUS VARNISHES TRADE MARK IVC PRODUCTS

weight about 8-lbs.; size 11-in. long, 7-in. high, 3½-in. wide. This Dual-Blok, sander-rubber-polisher, is a product of the Finishing Equipment Co., Indianapolis, Ind.

Protective Creams for Workers' Hands

Workmen as a rule do not indulge in beauty treatments, but those in some trades have greater need for cosmetics than their wives and daughters. This is especially true of men who have to handle chemicals, solvents, greases, and oils that destroy the protective secretions of the skin and promote the formation of lesions which are usually painful and may become serious.

To protect its own workers' hands, Maas & Waldstein Co., makers of industrial finishes, Newark, N. J., has developed two special protective creams. Protective Cream No. 1 is for use on the hands before beginning work, and Protective Cream No. 2 is for use after work is finished. As many of the company's customers have need of a similar preparation, it has decided to put these creams on the market.

M&W Protective Creams have been found useful for protecting the hands of painters, finishers, chemical workers, printers, mechanics, handlers of gasoline, grease, and oils, and others whose hands are not wet with water during their work. According to the manufacturer, this treatment keeps the hands soft, and prevents the skin from drying out, cracking, and developing fissures and sores.

Portable Grinder

The Mall Tool Co., Chicago, Ill., announces the introduction of a new type flexible-shaft grinder—the 1½-h.p. Universal. This grinder operates at 9000-r.p.m. on either 110-volt AC and DC, or 220-volt AC and DC electric service. It delivers high speeds together with high horsepower to the working tool. With this high speed grinder a 4-in. wheel will accomplish the same results as an 8-in. wheel used on a slow speed unit.

The Universal Grinder is recommended for grinding weld seams, flat surfaces, surfacing and snagging castings, grinding stainless steel, and numerous other grinding jobs in all industrial plants.

For smoothing rough metal surfaces.

In race to imitate

BLANCHIT

some bleach makers overlooked wood nature and texture.

Only users of

BLANCHIT

produce finishes that cannot be imitated.

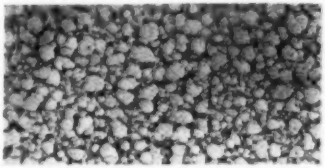
L. R. Van Allen & Co.

Chicago, Ill.

"Metaltone" Finish

The Rowe Paint Co., 43-42 10th St., Long Island City, N. Y., announces a new "Metaltone" finish designed to produce an attractive hammered metal effect on sheet metal or cast metal. It is a finish designed for spraying and can be air-dried or baked, producing a tough durable decorative coating which covers satisfactorily and hides various imperfections in the surface of the metal. "Metaltone" finish is supplied in black and a wide range of colors.

Of the two sample-finished sheet-metal panels sent to this office, one shows the pattern illustrated in the accompanying cut and is labeled "air-dried in 20 minutes". The other shows a different color and a pattern more fine and smaller in detail, and is labeled "one-coat baked finish; in color, 180°F., 20 to 30 minutes; in black, 400°F., one hour to 1½-hours."



What one pattern of "Metaltone" looks like.

say Mr. Finisher:

Are you having trouble with bleaching either stained or raw wood? If so, call TECH for a Bleach that works . . . it will end your worries.

Our fast cutting paint and Varnish Remover has many friends.

All prices F. O. B. Chicago.

Tech Manufacturing Co.

709 S. Western Ave. HAYmarket 2785

CHICAGO, ILLINOIS

"Quality plus Service — That's TECH!"

Galvanized Sheet Metal That Holds Paint Immediately

ARMCO's research department has given its O. K. to the commercial production of galvanized Paintgrip sheets. This is a new kind of galvanized sheet that takes and holds paint immediately, without special treatment by the user.

Perfection of "Paintgrip" sheets is the result of several years of ARMCO research work in cooperation with the Parker Rust-Proof Co. experts.

Readers who are interested in the many applications to which this new kind of sheet lends itself, can obtain the information by writing to The American Rolling Mill Co., Middletown, Ohio.

Mall GRINDERS

For Every Industrial Finishing Application—

Polishing — Rubbing — Grinding — Dry and Wet Sanding for all Metals and Materials

Submit your finishing problems to us. We will gladly recommend type of equipment best suited for your work.

MALL TOOL COMPANY

7744 South Chicago Avenue Chicago, Illinois

Offices and Distributors in all Principal Cities

Bleached Wood Finishes

FOR FURNITURE

"I am submitting an article on what I believe to be one of the newest finishes in demand at the present time, and which requires a little more attention and more careful work in order to get best results safely and economically."

Ferd Rosen

Service Department

SPECIAL CARE and precautions must be used in handling and applying the new materials for producing bleached blond and pickled finishes.

First: While using bleaching liquids, be sure to put them in glass or earthenware containers, not in metal cans. If these bleaches are sprayed on, be sure to clean the spray gun and aluminum cup immediately afterward, using boiling hot water. If the bleaching materials are used quite extensively, then I would suggest the use of a glass cup for spraying. All of these strong chemical bleaches will attack metal very rapidly. I would also suggest that the workman use rubber gloves in performing this type of work.

Second: Another important precaution is to be sure and let the bleaching solution, that has been applied on the wood, dry out well before putting on any other coatings over it. Most bleaches require an overnight drying to stop a chemical reaction on the succeeding coats.

I have seen a number of failures and unsatisfactory results in the use of these materials, due to careless and improper handling and application of same. The most common complaint in making these blond and pickled finishes is that the lacquer, if applied too soon after bleaching, will produce bubbles and pin holes in the finished surfaces.

The best way to avoid trouble, after using a bleach and letting it dry at least overnight in a warm room at about 70°F. or more, is to sand or rub off all bleached surfaces with fine steel wool; then wipe off the surfaces again with a moist rag that has been dipped in denatured alcohol. After about 30 minutes the bleached surface is ready to be wash-coated with either sealer or shellac; then it can be finished in the regular way, by using either a pale lacquer or a slightly pigmented lacquer for the blond finishes, and an oil glaze or paste filler for the pickled finishes. The latter also require a clear finishing lacquer over oil glaze or filler.

by Ferd Rosen

In Service Department of a Nationally-Known Company

"MAGIC" TACK RAGS
IMPROVE YOUR
FINISH 100%

MAGIC TACK RAGS remove specks, lint and sand particles—bring out that deep, smooth luster, produce a faultless surface for white or colored finish. Why use "home made" tack rags when you can buy MAGIC TACK RAGS at trifling cost! They are tackier, do not dry—are dust-proof and spontaneous combustion proof. Packed in dozen and gross lots or more. Made only by the

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If your dealer does not carry Magic Tack Rags, write us for sample.

AIR
UNIVERSAL
FILTERS

Patented

REVOLUTIONARY - YES
HIGHLY EFFICIENT - YES
ECONOMICAL - YES

UNIVERSAL FILTER SALES CO.
4223 Forest Park Blvd., St. Louis, Mo.

Agents Wanted Principal Cities

In some instances, where it is necessary to use two applications of bleaching liquid, the surface so bleached will require more time to dry, and it will show a greater amount of crystallized chemicals which must be removed before proceeding with the finishing operation, as explained above.

Combination Color Effects

It is possible to make great numbers of combinations and effects in pickled finishes on open-pore woods such as oak, mahogany, walnut, elm, ash and others, by varying the colors in the glazes or fillers after bleaching and wash-coating these woods. The most pleasing effects can be obtained with tans, browns, grays and blacks; and also the brighter colors such as pale green and blue. These color glazes, if used properly and not too strong in color tone, will produce some very pleasing effects on bedroom furniture in the cheaper woods such as elm, plain oak, and others.

It is also possible to obtain very attractive two-tone color effects in this type of finish by using a color glaze on some parts of furniture, and leaving other parts in a natural or blond finish. For example, leave the top and drawer fronts on a chest of drawers or dresser case, a lighter color by leaving them blond or using a very pale glaze; then use a darker glaze on the front stiles or strips between drawers and base rail and also on the sides of cases; and carry this combination all through the entire suite. This finish will also look good on the better grade of dinette suites.

This type of finish can be improved by trimming or striping

these pieces with a corresponding color on moldings and on drawer pulls or knobs.

All these finishes, however, should be built up in a good smooth finish, preferably with several coats of pale gloss lacquer, and then rubbed with pumice and oil to a nice soft sheen.

Allow More Time for Finishing

I HAVE BEEN reading the article, "Production Time Limit, and Its Possible Effects on the Finish," by Mr. E. A. Zahn, in the January issue of INDUSTRIAL FINISHING (pages 15 and 16) and have taken a deep interest in it. Probably the majority of practical finishers of today will do likewise. We should all give Mr. Zahn a hearty handshake and compliment him on his wonderful understanding of finishers' problems.

As we all know, it takes the mechanic to make the goods; but it also takes an attractive finish to please the customer and sell the goods, so the finish is a very essential thing in the make-up of a fine looking article. The better finish sells more articles, so why try to make finishing materials do something they will not do and were never intended to do? Finishes must be not only attractive when they're new, but they must stand up under critical inspection and wear well for a long time.

The time has passed when the public will pay for a good finish and then be satisfied with a hurry-up job wherein the finishing material was misused — although the finisher was not to blame. To-

TRY THIS *low-cost* WAY TO STRIP REJECTS

LIKE so many other jobs in your plant, stripping rejects is just what you make it. It can be a time-consuming job. It can be fire hazardous, or be the cause of objectionable fumes.

On the other hand, with the new Oakite materials specially prepared for this work, stripping rejects can be done with

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in time, effort and money that

WILL SURPRISE YOU

Put your problems up to the Oakite Service Man the next time he calls. Or, if you prefer, ask for full information now. We've had a good many years' experience in this work, and we can help you as we already have so many others. Write. No obligation.

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OAKITE
SPECIALIZED INDUSTRIAL CLEANING MATERIALS & METHODS

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Wool - Cotton - Rayon
- In All Colors
- For All Equipment
- For Every Purpose

SUITABLE FOR:
Rubberized Fabrics—Flock Printing — Velour Paper — Moulded Plastics — Spray Gun Equipment (For Woods, Metals, Paper and Glass)

Let us help you develop or reproduce that special effect or color tone. Send us sample or description of what you need.

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Pioneer Manufacturers Since 1875

Graining Plates that produce the rich depth tones of natural wood. Write for proofs.

AMERICAN ELECTROTYPE CO.
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day the customer wants what he is paying for. If he does not get it, he puts up a protest as he has a right to do, and that protest costs the company. It probably costs more to refinish the piece than they received for the goods in the first place.

In "over-rushed" production finishing the job not only appears to be poor when it's new, but in a short time the used surfaces will look as though they never had been finished—which makes a bad reflection on the finisher, regardless of how good he is, or what care he has taken in his work. Finally he becomes discouraged and his life begins to look like a bed of thorns instead of roses. He feels that all of his years of experience and work are for naught; that his reputation is not worth ½ of 1% on all the time he has spent in the finishing game. This comes from limiting the production time . . . . hurrying the job out because "it has to be shipped in five hours," whereas it ought to have been in the finishing department for at least 24 hours . . . . But the work was received in the finishing department many hours behind schedule. Time had to be made up in the finishing department in order to ship to the customer on time, consequently the finisher had to "cut" here and there to gain time; in doing this he misused the materials . . . . but he got the job out on time. Sooner or later he hears from it, and so does his firm. Then the extra expense of refinishing begins, or the firm loses a customer.

All this comes from not getting work to the finishing department on schedule, so the finisher will have ample time to do it satisfac-

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are ENGINEERED To Each Job...

• To produce fine, durable finishes at the lowest unit cost, expert finishing service must accompany good products. Users of M & W finishes receive the services of Maas and Waldstein Finishing Engineers, backed by extensive research facilities.

M & W PRODUCTS FOR INDUSTRIAL FINISHERS

CLEAR METAL LACQUERS—for every metal and alloy and every kind of service.

NON-STAIN SPOT LACQUERS—reduce "spotting out" to a minimum. Maximum adhesion and durability.

WATER DIP LACQUERS—for production finishing of brass-plated products.

BURN-PROOF LACQUERS—resist burning from lighted matches and cigarettes.

TOP-COAT LACQUERS—high gloss or mat; easy rubbing, good color retention.

BRONZE LACQUERS—do not jell or discolor with bronze powder. Good gloss and flowout.

LACQUER ENAMELS—in all colors for all metal surfaces and finishing requirements.

METALUSTRE LACQUER ENAMELS—air-drying enamels, giving a lustrous, durable metallic finish in one coat.

DURAD ENAMELS—a complete line of synthetic enamels for high-grade metal products. Durable, flexible, resistant to marring, moisture, cleaning. Semi-gloss, all colors.

Send for information on finishes for your special requirements

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Polishing Compounds
are made at
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A PRODUCT FOR EVERY PROBLEM
Samples on Request
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torily and save his own reputation as well as that of his firm. I have had many experiences similar to this during my years of finishing in both woods and metals, but like the practical finisher Mr. Zahn mentions, I have been trying to eliminate all this trouble by showing the manufacturer that the finisher ought to have the work in his department on time. Often, in the factory, I have been asked if a certain job was about ready to ship, when I had not even received the sample for color or finish; and when I did get it, it was about time for the job to be shipped.

Now what I am trying to impress upon the minds of manufacturers (finish users) is this: Give the finishing end a little more time. Don't hurry this end of your plant so much, and the final results will be surprisingly better in many cases.

All finishing materials are made to dry during a period of time stated by the company that makes them . . . . and, under favorable conditions, they will give good results in the finishing room. The proper length of time for finishing and drying should be so scheduled in the process of manufacturing articles that the finisher will have his proper allotted time for doing a thorough lasting job; and in the end, both the job and the finisher will look like a million dollars—instead of there being a bad job and a discouraged finisher. Let us all try and keep the production of our machine and assembly departments on time, so the finishing department will get the work on time.

In some factories we all run into obstacles in the finishing line; for example, poor heat, improper

ventilation, dirt and many other things that are detrimental to good finishing. This has happened frequently in the past six years, *but now in 1937 we are trying to bring good conditions back to the finishing department. I hope all manufacturers will try and help their finishing departments along by seeing to it that the work gets to them on time, so the finishers can make the jobs and finishes a credit to themselves and to the manufacturer.*—L. A. VANARMAN.

Letters from I. F. Readers

(Continued from page 11)

South Bend, Ind. Bar-Ox "Formula 97" is a rust-resistant paint manufactured and sold by The Truscon Laboratories, Detroit, Mich.—Ed.

Knifing Filler

Referring to the article by Armin Furrer, in March, 1937, issue, pages 73 and 74, we are interested in the synthetic gray heavy-paste knifing filler, which can be baked at 300°F. Can you send us the name and address of this company?—V. Mfg. Co.

It is Ault & Wiborg Corp., Cincinnati, Ohio, and New York, N. Y.—Ed.

Baltimore Paint & Color Builds Again

For the tenth successive year, The Baltimore Paint & Color Works, Inc., Baltimore, Md., will add to its plant and facilities. The company has purchased two pieces of property on McPhail St., which adjoins the rear of its plant. Plans call for the addition of a second story over this site and for a two-story building adjoining, which will cover the rear of the present property. This improvement will provide approximately 8500-sq.ft. of additional space. Additional equipment is being installed to increase production.

YES....THIS FINISH GIVES A UNIFORM WRINKLE REGARDLESS OF CONDITIONS

Here is a fool-proof product. Wrinkle-Cote in every color provides a beautiful, uniform, close grained, soft lustre finish with a single coat . . . and this regardless of humidity or furnace conditions or variations. Wrinkle-Cote has won the enthusiastic approval of everyone who has tried it. Give it a trial yourself and prove that it is really a different and better finish. Let us send you complete details.

Wrinkle-cote

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Manufacturers of Specialized Industrial Finishes and Lithograph Coatings, for Spray, Dip or Roller Application to Metal.

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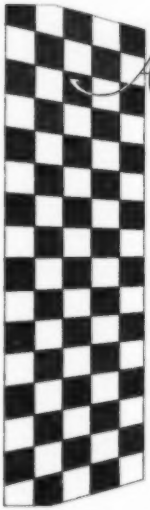

Attention

TILE

Manufacturers

and others

NEWCO No. 1 Fine Compound is especially designed for machine rubbing and polishing of Tile Board. Is also used extensively for caskets and all lacquer and varnish coatings. Burnishes the surface to a glass like luster that will not cloud. Used by leading manufacturers in the U. S. Write for samples.

H. & N. COMPANY

1310 E. 4th St. Cleveland, O.

FOR SALE—Conveyor Type Dip and Bake Japanning Ovens—

Reasonably Priced

7—Gehnrich Vertical Pass Conveyor Dipping, Drain, and Baking Ovens—Gas Heated—Complete with Auto. Fire Extinguishers—Variable Speed Drive Motors, Etc. Work Bar Length 74" — Total Length 42' and 54'.

2—Gehnrich Vertical Pass Conveyor Baking Ovens — Gas Heated — Complete with Recording Thermometer Motors —Variable Speed Drive, Etc. Work Bar Length 74" and 88" Total Length 40' and 63'.
Also Large Assortment Spray Booths, Guns, Drying Ovens, and Other Equipment.

ATWATER KENT MFG. CO.

4700 Wissahickon Ave.

Philadelphia, Pa.

Colors Standardized for Kitchen and Bathroom Furnishings

Formal ratification of the plan to standardize kitchen and bathroom colors was decided upon at a conference held in New York City, April 30th, between the committee of the National Retail Dry Goods Association and a committee from the U. S. Bureau of Standards. This has been the subject of much discussion and preliminary work for several years, and a year's work by a committee of the Housewares Group of the N. R. D. G. A.

The official colors, as adopted are: Kitchen accessories — white, green, ivory, dephinium blue, royal blue and red. Bathroom accessories—white, green, orchid, ivory, maize (yellowish red-yellow), blue and royal blue.

January 1, 1938, was set as the date at which time it was suggested that merchandise in these colors be generally available for retail selling, although manufacturers are free to put them into actual production just as soon as possible. Sample cards of the actual standard colors, made on porcelain enamel plaques so as to be impervious to fading or wear, will be available in about 60 days and can be had for $10 for the complete set. Requisitions for them should be sent with checks made payable to the National Bureau of Standards, U. S. Department of Commerce, Washington, D. C., attention of F. W. Reynolds.

The widespread interest this matter of color uniformity holds was indicated by the presence at the conference not only of many housewares manufacturers, buyers and merchandise managers from department and chain store and mail order firms, but also many paint manufacturers, representatives of related trade organizations, as well as consumer groups and designers.—Belle Caldwell.

STICK SHELLAC

Better than anything else for repairing imperfections in wood, marble, etc. Made in 70 colors to match all finishes. Write for FREE Color Card and descriptive Booklet.

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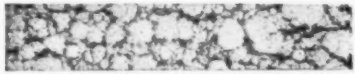
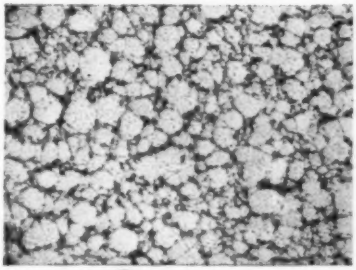
Rowco METALTONE *air dry or bake*



A tough, durable, decorative finish furnished in a wide range of colors . . . . producing a very attractive HAMMERED METAL effect.

Rowco METALTONE is easily applied on metal surfaces of all kinds. Covers well and hides surface imperfections. Can be baked; or air dries in 20 minutes.

Write today for sample panels and prices of METALTONE — the outstanding decorative finish.



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LONG ISLAND CITY, N. Y.

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PORES NEED FILLING for smooth - textured attractive finishes. Presdwood, celotex, natural woods, rough metals and porous compositions need quick-drying, easy-sanding, high-bodied surfacers—in short, our CEL-U-LAK Surfacers.

These have unusually high body, coupled with low viscosity, permitting a heavy application by spray; air dry to sand in 1½ hours, force dry at 125° for 20 minutes. They are ground finely and have phenomenal adhesion and resistance to moisture.

CEL - U - LAK Surfacers are standard in white, ivory, dark grey and red. They have for 6 years been an outstanding successful item in our line. We suggest you examine it for your requirements.

The VARNISH PRODUCTS CO.

CLEVELAND, OHIO

Industrial
FINISHING

Distributed to Executives and Foremen Finishers in industrial plants where finishing coats are applied with finishing equipment

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EDITORIAL

Industrial Thinking

The Editor felt more flattered than amused upon reading the following letter from a manufacturing firm:

"Please send us your publication, INDUSTRIAL THINKING, as we have read a few copies of same and think it is very educational."

While perhaps the stenographer erred in writing "Thinking" instead of "Finishing," nevertheless it is obvious to readers of the publication that the contents of every issue of INDUSTRIAL FINISHING do provoke thinking—thinking which is constructive, educational and profitable. New problems are continually being presented and solved; new ideas are being suggested; improved materials, supplies, equipment and methods are being offered; new styles and color schemes for industrial products are being revealed, and industrial safety is being stressed. All of these things stimulate industrial thinking which in turn is eventually translated into action for the betterment of conditions in various types of industrial establishments.

Really, industrial thinking is needed today to help solve what is said to be the greatest variety of pressing problems that industry has ever faced ... and INDUSTRIAL FINISHING welcomes the opportunity to do its part in serving as a convenient and reliable medium for the exchange of information of value along all lines of finishing and related operations.

Professionally Styled Finishes and Color Schemes

It is common knowledge today that effectively styled and finished merchandise sells more easily and quickly at higher prices than goods that have equal utility value, but which are less attractive. As a result, more manufacturers are turning to professional stylists and artists for incorporating into their products that something which will give them the ultimate in eye appeal; in other words that peculiar quality that will make the masses of modern consumers want to buy them. The difference between volume sales at good prices and small

sales at low prices will more than pay for the fee demanded by a competent stylist or artist.

The incorporation of style and color has become a recognized element of cost that is as necessary as direct production costs and sales expense. Various means of handling this factor are available to manufacturers. Some concerns call in an artist when they are bringing out something new or when they are redesigning certain items in their line. Others send samples or specifications of their products to an individual or firm specializing in this service. Some of the leading manufacturers of finishing materials offer this service to their customers at a very reasonable charge.

Usually the individual or concern outside the plant producing the article is better qualified than someone in the plant to submit designs, styles and color schemes that will "click" with the public. It is from such a source that the manufacturer is more likely to get that freshness and originality which distinguishes professionally styled goods from imitation and copied designs.

In a talk given at the 32nd annual meeting of the American Society of Refrigerating Engineers, in New York City, Mr. Howard Ketcham, Color Engineer, said:

"Selling, not buying, is the chief obstacle encountered in business today. It is the keeneness of desire—not necessity—that influences the ground-swell of style merchandise consumption. In a word, it is the consumer's taste and not the manufacturer's which most succesfully promotes volume outlets for style merchandise. Study the consumers' tastes! Base your selling appeal on some human buying motive rather than on price appeal. Sell color, style, beauty. There is no profit in selling price! Get the right color for your merchandise. Women are most interested in style, appearance and new ensemble ideas. Since women are responsible for most of the merchandise sold, and since the subconscious influence of appearance appeal is today recognized as the most potent force in modern selling (three-fourths of this appeal depends entirely upon the discriminating use and choice of color) having the right color at the right time is decidedly important."

With the wide variety of patterns and colors now available in finishes, it is possible to produce many remarkably effective combinations. Established lines of utility and decorative articles can be dressed up in new ways from time to time so that they never become commonplace — never fail to excite new interest when displayed for sale.

Reclaiming Used Rags, Waste and Materials

Considerable saving can be made in some factories by washing and re-using the rags, cloths, waste, etc., that have been used for wiping, rubbing and polishing in the finishing department. Materials and equipment are available for thoroughly cleaning the most soiled rags imaginable, and these cleaned cloths are just as effective for service as they were when first used. In fact, some workmen prefer washed rags, claiming that they are softer and less "linty."

Finish small parts in the

FILWHIRL

(Centrifugal)

ENAMELER

Wouldn't you like to coat as many as 120,000 to 225,000 articles, or parts, in an 8-hour day, as some are doing; and on small items, finish in quantities up to 600,000 per day? This method affects large savings in finishing materials, too. Learn more about this wonderful machine. Just send us samples of your product for coating in the FILWHIRL ENAMELER, and we will return them for your inspection. Write us TODAY!

THE LEON J. BARRETT CO.
Grafton Street, Worcester, Mass.

In the face of these facts there is no good reason or economy in throwing away or burning the rags, cloths or waste that have been used only once. As to the fire hazard of keeping soiled rags instead of burning them at the end of each day, the rags should be kept in a ventilated metal container or spread out over a table or bench so they will not ignite during the working day, and then they should be thrown into water or the cleaning solution to stand over night or over holidays.

As to reclaiming such materials as paints, varnishes, lacquers or enamels, this is seldom really profitable except in the case of large users, and where the waste materials can be collected fairly clean and at low cost, as in water-wash spray booths. The salvaged solid matter, such as gums and pigments, must be put into solution again with suitable solvents, and then the mixed material should be strained to make it clean. Even then the material salvaged is usually only fit for "secondary work," and not for high-class finishing.

Finishing Costs Based on Price Per Gallon

While the price per gallon of finishing material is obviously an element to be reckoned with in the cost of finishing any line of products, this price-per-gallon proposition can be a very misleading factor in the selection of materials. The addition of thinner (which costs money but which evaporates); the labor of mixing; the number of coats required for adequate coverage; the drying time; the area covered or the

number of articles finished per gallon of mixture; the percentage of waste; the labor and the time involved in application; the labor and time involved in refinishing, repairing or touching-up after production finishing; the effectiveness and appearance of the final finish—these are but a few of the added things to take into consideration when selecting a finishing material. Purchasing agents may not realize it, but sometimes a material that sells for less per gallon really costs the company more than a suitable material at a higher price per gallon.

How is the management of a concern to find out the facts? The logical way is to keep accurate costs on the work of finishing. While it costs some time and money to keep an accurate tabulation of finishing costs, nevertheless this information is a valuable guide in the pricing of the finished product, as well as in determining what materials, methods and equipment are the most profitable and economical. Even without a careful tabulation of costs an experienced finishing foreman can tell, in a general way, what material is the most satisfactory, but unless better materials are made available for a production trial, the foreman has no opportunity to make comparisons. Management should have better reasons than "price per gallon" for buying certain finishing materials. When specific information on which to base these reasons is available, we will see more intelligent purchasing, better finishing results, and more profitable finishing-room operation. Meanwhile, do not shy away from the higher-priced goods. Test them!

Here's a World Beater . . Let It Speak for Itself . . . . . It Will!

DRAWER COATER CLEAR LACQUER No. 7469

(FOR APPLICATION ON BARE WOOD)

Also Supplied in

CLEAR WALNUT OR MAPLE

- Wonderful Build—Ready for Spraying.
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- Produces velvety, waxy feel.

INTRODUCTORY OFFER

Order 5 gallons of Clear at Drum price, $1.00 per gallon. Satisfaction guaranteed —or, return balance via express, collect. You will owe us nothing.

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Manufacturers of

INDUSTRIAL SYNTHETICS, LACQUERS, STAINS, VARNISHES

Chandler St. Springfield, Mass.

GARDEN CITY
Ejector Blowers

For exhausting from spray booths, tanks, hoods, etc. No fire hazard, no fan cleaning.

A. Exhaust from booth or hood.

B. Ejector Nozzle.

C. Ventura Throat.

D. Final Discharge.

E. Garden City Ejector Blower.

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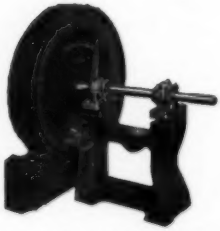
Heat Fans



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Largest Degreasing Machine

The Dodge Division of the Chrysler Corporation uses what is said to be the largest degreasing machine in this country. Fenders and sheet metal parts are degreased in this equipment before being bonderized. The parts to be cleaned are carried through the heavy vapor of a chlorinated organic solvent which rapidly condenses on the metal surfaces and, in flowing off, carries all oil and grease with it.

This Detrex degreasing machine is built by the Detroit Rex Products Co., of Detroit, Mich. It is served by two monorail conveyors, each carrying a continuous stream of metal parts at approximately 20-ft. per minute, through the vapor. All cleaning is automatic with a normal production of 17,000-lbs. per hour and a peak production of 60,000-lbs. per hour.

The machine itself is 65-ft.5-in. long, 10-ft.5-in. wide and 19-ft.4$\frac{1}{4}$-in. high.

The vapor line in this Detrex degreaser stands about 8-ft. above the floor and is controlled by a cold water condenser that condenses all vapors above that point, the condensate flowing back into the boiling chambers. While the machine is operating the solvent is kept at a boiling temperature by means of steam coils running along the bottom of the boiling chamber.

In addition to the degreasing machine itself, a still is used to reclaim dirty solvent at the rate of 50 gallons per hour. The machine itself automatically distills about 250 gallons of solvent per hour.

Parts coming from the degreaser are perfectly clean and thoroughly dry—all ready for the spray-bonderizing process which follows cleaning.

Fire Fails to Stop Lawrence-McFadden Operations

Although the stain and filler plant of The Lawrence-McFadden Co., at 1400 Frankford Ave., Philadelphia, Pa., burned recently, the company experienced only temporary delay in this line because the manufacture of stains and fillers was quickly resumed in the company's varnish and lacquer plant at 4th and Bristol Sts., Philadelphia. The company states that it is in position to serve its customers promptly, as heretofore.